THE

# JOURNAL OF GAS LIGHTING.

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## TO CORRESPONDENTS.

Inquisitor.—*We are quite unable to inform our correspondent from what "ancient author" the quotation, "lux mihi laurus," has been derived; but its application to the individual in question is simply ridiculous. The only motto that exactly suited the circumstances of the case was, "e flammâ cibum petere," which, being interpreted freely into the vernacular, means, "to get one's living by agitation."*

## NOTICES.

The subscription is 10s. per annum if paid in advance, or 12s. on credit, payable in two sums of 6s. each, due in June and December of each year. All subscriptions commence from the 10th of January.

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The Editor will be particularly obliged by his friends forwarding to him Notices of all Meetings, Trials, or Appeals, which it may be interesting to the Gas World to have reported.

## DISHONESTY OF THE "CHEAP GAS" AGITATORS.

The past month has been so singularly prolific in disclosures connected with the so-called "cheap-gas movement" of the metropolis, that we feel compelled again to open out the leading features of this "thrice-told tale," in order that our readers may judge how far the present condition of the scheme corresponds with the glowing Californian panorama once held out for the admiration of the public by the concoctors of the Great Central Gas Company. "To keep the word of promise to the ear, and break it to the hope," is far from being a novelty with projectors; and hence we are not surprised to find that the pledges and protestations of this company respecting the extra purity, &c,, of the cheap gas, have, like the witches in Macbeth, "made themselves air" and vanished. It is, however, rather new to find men of business—persons in the middle ranks of life—so lost to all sense of shame as to seek, in barefaced duplicity and falsehood, a refuge from their previous folly and ignorance. Fortunately, too, it is still more unusual to meet with such men and such conduct in the metropolis of Great Britain.

The facts we are about to comment upon are perfectly notorious, and need, therefore, no asseveration of ours to corroborate the evidence they afford. They are, moreover, facts of so undeniable a kind, and so conclusive in their nature, as cannot fail to rouse the honest indignation of every respectable individual in the kingdom. To falsehood in its most offensive form has been superadded a line of conduct at which honesty shudders and moral security turns pale; for an attack has been made upon the very heart of our commercial prosperity—upon the root of probity itself.

We need not further dilate upon the grossness of the outrage committed, but point at once to the hateful record which stamps with infamy this base transaction. We therefore solicit, on the part of our readers, a careful perusal of the Report of Dr. Letheby on the gas supplied to the City of London by the Great Central Gas Consumers' Company, and the report of some proceedings which took place before the Court of Sewers, held at Guildhall on the 21st ultimo. These will be found in their proper place in our columns.

It has always been admitted as an axiom that no part of a quotation can be used unless it fairly and fully represents the meaning of the whole, or, in other words, the meaning of the author. The Jesuits, indeed, have held themselves as an exception to this rule, though not much to their honour. We find, however, that there is another exception in the chairman and directors of the Great Central Gas Consumers' Company. These individuals (we cannot say gentlemen) have found means of giving publicity to as much of Dr. Letheby's report as suited their purpose, and to repress the part which proclaimed the impurity of the gas they sell. Nor is it unworthy of remark that the entire daily press of London has lent itself to the propagation of this disgraceful fraud. Let any one run his eye over Dr. Letheby's report and say whether that report is condemnatory or otherwise of the Central Gas, and let him then omit the portion of that report which commences, "With respect to the chemical quality of the gas," &c., and he will have a very correct opinion of the honesty which dictated the omission. For ourselves, we are content to leave it where it is, well knowing that there is not in our language any expression capable of representing such conduct in its true colours. Well might Mr. Lowman Taylor, sensitively alive to the decaying honour of a venerable institution, declare that, "if the report of a public officer appeared in public print, it should not be a garbled and incorrect one." Well might Mr. Deputy Lott conclude that, after such a report, the proper language of the Great Central Gas "Presumers" should be that of "contrition and penitence, not of boastful and inflated narrative." And so evidently thought Messrs. Dakin and Co., or why were the condemnatory passages of the report withheld from the public? As regards these very passages it is not a little remarkable that the censure they convey was published in this Journal three months ago, by our esteemed correspondent, Mr. Lewis Thompson. In our number for June last, Mr. Thompson pointed out the occasional presence of sulphuretted hydrogen in all coal gas, and, moreover, distinctly asserted that the Central gas was, as Dr. Letheby very properly puts it, "overcharged with bisulphuret of carbon." And this is what Mr. Dakin calls an "infinitesimal small quantity." This, which Dr. Letheby denounces as "not only injurious to the health and comfort of those who breathe it, but destructive to property by rotting and tarnishing, &c."—this is an "infinitesimal small quantity" according to Mr. Dakin, whose cool assurance is

certainly not an infinitesimal small quantity, whatever his veracity may be. It occurs to us, however, that the common sense of the consumers of the Central gas must be somewhere about equal to Mr. Dakin's estimate, if they do not insist upon having a purer gas.

We now touch upon the question of veracity. In our last number a severe charge was made against the agents of the Great Central Gas Company by Mr. L. Thompson—they were charged in fact, by this gentleman, with a flagrant act of falsehood and duplicity. Since then we have inquired most minutely into the circumstances stated by Mr. Thompson, and find them to be even worse than he has represented. Attempting to steal a march upon their rivals, the would-be-cunning agents of the Central Gas Company were foiled by the very means which they foolishly employed for their success. Having procured a tool capable, as they thought, of carrying out their contemptible project, this man was made to apply to the two rival companies for gas under a pretext that he was discontented with the Central gas, and wished to consume that of the other companies, in an imaginary billiard-room, the house meanwhile not being licensed for billiards; of course, so palpable a sophism was seen through in an instant, and the scheme encouraged to that precise point where all the expense had been incurred by the Central Company, when, lo! "the spear of Ithuriel touched the toad," and up sprang the cloven hoof in its true shape. In plain words, the plot was discovered, to the confusion of Messrs. Dakin and Co., who next rush to their wearied patron the Court of Sewers, for that which dishonesty and untruth had failed to procure. Here, however, in the Court of Sewers, we find as little attention to veracity as if no defeat had occurred in the Poultry. With unblushing front Mr. Dakin hesitates not to declare that the Chartered and City Gas Companies "pledged themselves to submit the gas they supplied to be tested by an impartial and capable public officer," and, by inference, to pay each £100 per annum for the same. Well, the result is that Mr. Dakin is flatly contradicted by the proper authorities of both companies, who have thus left him an "infinitesimal small quantity" of room to escape from one of the most obnoxious epithets known to society.

But Mr. Dakin is wrath with Dr. Letheby, because that gentleman has used the power vested, we hope, in the hands of every scientific man to decide for himself how he will conduct his own experiments, and conscientiously discharge the duty confided to him. Mr. Dakin wishes the public to believe that "four of the most eminent chemists of the day" entertain objections to the method used by Dr. Letheby for testing the Central gas. Now, we happen to know that two of these eminent chemists, viz., Professor Graham and Dr. Leeson, did all they could, in their experiments on the gases of the old companies in 1849, to secure the very result which is the necessary consequence of the simple arrangement employed by Dr. Letheby and contrived by Mr. L. Thompson. They used every effort to destroy and nullify reflection even to the "covering up of the bosoms of their shirts." We quote authoritatively, and, in the very teeth of Mr. Dakin's assertion, declare that neither of these gentlemen allowed the reflected and diffused light, spoken of by Mr. Dakin, to enlarge or modify in any way their results. In fact, in a sufficiently large room, properly blackened, Mr. Thompson's contrivance is unnecessary, and in no way affects the experiment. It was, as we have reason to know, merely invented to remedy the inconveniences of reflection, under circumstances of peculiar difficulty.

Again, as to Mr. Dakin's statement, that he and his company "feel themselves entitled to say that the efforts and example of an able scientific engineer have greatly elevated the quality of the gas supplied by the Central and other companies." What they feel themselves "entitled to" we know not; but we do know that the quality of the gas now supplied by the old companies is of the very same illuminating power that it was ten and twelve years ago. If there be any difference, it is not in favour of the present; and, as to the question of purity, we wish to know the name of that impurity which does not exist in the Central gas. There are, it appears, sulphuretted hydrogen, bisulphuret of carbon, and carbonic acid: what else can there be in the foulest gas? Yet Mr. Dakin has the modest assurance to tell the Court of Sewers that "the gas supplied by his company *is*, and it is *so* reported to be by Dr. Letheby (!), not only superior to the article supplied by the other metropolitan gas companies *before* ours was brought into existence, but its illuminating power is more than one-fourth higher than our act-of-Parliament standard requires." Shade of Munchausen! what next? One-fourth higher than the act-of-Parliament standard requires! And how high is that? Supposing a horse is about to be sold at Tattersall's, with this recommendation, that he was one-fourth swifter than the wind. Query, at what rate does he trot? We suspect Mr. Babbage's calculating machine would get tired of this question; and yet the so-called parliamentary wax-candle standard is exactly "a bird of the same feather." Who the "four most eminent chemists" are, by whom this "will o' the wisp" standard was ignorantly palmed off upon the House of Commons, we are not informed; but, be they who they may, this thing is a complete disgrace to them, and a slur upon the scientific reputation of Great Britain. The sooner so monstrous a piece of absurdity as a standard light varying 50 per cent. in its luminosity, is expunged from an act of the Legislature the better; and Dr. Letheby will gain both honour and satisfaction by aiding in the extinction of this wax-candle fallacy.

It is, however, a fact worthy of notice, that "nathless" the efforts of "the able scientific engineer," and the brilliancy of Mr. Dakin's aërial perspective, the painful truth is oozing out, that we have already arrived at "*le commencement de la fin*," and that the bubble must soon burst. Day by day the most unbiassed and unimpeachable evidence of the purely selfish nature of the cheap-gas agitation is fast accumulating; and the great bulk of the citizens of London now see with disgust and astonishment, that a scheme to which, on the purest of motives, they once lent their aid, never had for its object a higher purpose than to fill the pockets and gratify the prurient ambition of a "cannie Scot," and his reputed partner, Mr. C. Pearson. Even the turgid eloquence of Mr. Deputy Harrison can no longer mystify the matter, or get up, as heretofore, "a hole-and-corner" inquiry, or, as it is smoothly denominated, "a private committee," with closed doors. No, no, Mr. Deputy, the closed-door system will do no longer; for the citizens of London have at length awakened to a conviction of the great truth, that the City and Chartered Gas Companies have quite as much right to the support of the Corporation as either the Central or any other company. And, more than this, they are now aware that the wise and honest views of Mr. Lowman Taylor, in favour of non-intervention, were the only ones alike compatible with the honour and interest of our civic constitution. To descend to the meanness of bolstering up a few interested schemers at the expense of the honest and unprotected trader, is no less degrading to the ancient dignity of the Corporation of London, than it is ruinous to those great Saxon principles of self-government which have hitherto preserved us from the vices of centralisation.

## Correspondence.

### MR. LEWIS THOMPSON ON THE ILLUMINATING POWER OF GAS IN THE METROPOLIS.

Sir,—Were it possible to separate the actions of the Corporation of London from the outrageous assertions of the *soi disant* cheap-gas advocates, I should have been spared some trouble on the present occasion. As, however, the Court of Sewers, for a considerable time past, has perverted itself into what Mr. Deputy Lott, with equal truth and facetiousness, calls "an advertising van" for the service of the Great Central Gas Company, I cannot disconnect the doings of the one from the sayings of the other.

It does, indeed, appear rather singular to me that, in this matter, the Court of Sewers, as a sequestrum of the corporate body, should so entirely overlook the principles of its own constitution, and, in abandoning that dispassionate and impartial neutrality upon which, in the eyes of all men, its true dignity should be based, lend itself to a contemptible agitation, got up in falsehood, conducted in fraud, and now ending in exposure and defeat. It does, I say, surprise me to see such men descend so far beneath the proper level of their position, and become the willing dupes of the shallowest of all possible artifices; and did I not know that a reaction was taking place, and that every independent member of the Court of Common Council had become disgusted, *usque ad nauseam*, with the very name of gas, I would endeavour to show the whole Commission of Sewers how much they have lost and how little they have gained by unwisely departing from the calm and sagacious conduct of their predecessors, and by which the office they now so inefficiently occupy first attained its honourable reputation, and gained the confidence of the public. I believe, however, that it is unnecessary for me to do this; those "who run may read," in the late discussions in the Court of Sewers, a full and abiding proof

that the want of moral honesty is a certain prelude to the loss of all self-respect and dignity—the first step, in fact, towards the ruin of everything like respectability and usefulness.

I would hope that the excessively degraded condition to which the miserable gas question has reduced the entire corporate body of London in the opinion of the citizens may serve as a warning beacon for the future; if so, it is the only good which will be gained. Like Pandora's box, after the exit of every evil, hope alone remains at the bottom. Of the principal actors in this melodrama I need say but little. The character of Mr. Dakin stands upon his baseless assertion, doubly contradicted by the only parties who have at once the power and the right to do so; his position is, indeed, most unhappy, and, to a man of proper feeling, all but intolerable. I should be sorry to add one pang to the agony of remorse and shame which, I presume, now overwhelms him. True, indeed, he may smile, and declare "the happiness" he has to find that he is wanted in the Court of Sewers. "He was not a little gratified," says the report, "to find that, instead of his appearance being considered as an intrusion upon their time, he had absolutely been required to present himself that day."

"And then he bowed,
Was happy, vastly happy, vastly proud,
And then again he bowed."

But a quivering lip proclaimed that the pleasure, if there was any, extended no further than to the muscles of the face, and frightfully realised the sublime idea of Milton,

"He grinned horrible, a ghastly smile."

Yet Mr. Dakin, even on his own admission, had begun to have some misgivings as regarded the worn-out patience of the court; he felt that his appearance might be "considered an intrusion;" and truly, under the circumstances, I think he could scarcely do less. It was not his first appearance there in the same character by many a "teen of times," though it will, perhaps, be his last.

I next come to what my Lord Palmerston would call "the judicious bottle-holder" of the scheme—a gentleman who appears to be in that rudimentary stage of elocution practised by Demosthenes on the Athenian shore, when he harangued the waves "with pebbles in his mouth." Mr. Deputy Harrison has not yet got rid of the pebbles, but will, no doubt, prove a powerful orator when he is able to clear his mouth, for he has several of the external characters of the "*ore rotundo*." Mr. Bennoch has been a very persistent supporter of the gas project—a gentleman of whom I will only say with Cicero, "*Quid in dicendo potest nunquam satis attendi; in clamando quidem video eum esse benè robustum atque exercitatum*":—What he is able to do in speaking I have never sufficiently noticed, but at screaming he is special, stout, and expert. If ever the cheap-gas project shall assume the form of a historical record for the guidance of our children, these gentlemen will occupy a prominent position in the details, where I am quite willing to leave them without the slightest sentiment of envy.

In my last I expressed a desire to possess a copy of Dr. Letheby's second report, and by the kindness of a friend I have succeeded in procuring one. This report is decidedly creditable to Dr. Letheby, and I recommend it to the careful perusal of every impartial person. It corroborates, in all its essential features, my own observations upon the Central gas; and I freely compliment Dr. Letheby upon his manly and straightforward disclosures. "*Dicere verum, quid vetat?*" should be the motto of the chemical referee of the City of London; and this, if acted up to, will not fail to ensure perfect immunity from interference.

As applied to the report, I consider Mr. Dakin's memorial a brutal insult to Dr. Letheby, who, being a man of science and knowledge immeasurably beyond the "counter" information of the chairmain of the Central Gas Company, will, I trust, look down upon that memorial with the contempt it merits. Taking courage, also, by the favourable reception of a trifling alteration, it is to be hoped that Dr. Letheby will abandon the use of wax candles. The continuance of this practice can do no good in a scientific point of view; and no man can now know better than Dr. Letheby, that the burning of a wax candle is subject to such excessive variations as to render the use of the word "standard" a perfect farce.

Dr. Letheby does not notice the large amount of carbonic acid in the Central gas, but which will not, probably, escape his future observations. Some small improvement has, indeed, taken place in this respect, for the average during the last fortnight has been only $\frac{6}{10}$ per cent., or about one-half of the previous quantity.

Dr. Letheby seems to attach some importance to the indications afforded by the specific gravity of the gas; but this, it seems to me, can only be true as regards gas uncontaminated with carbonic acid; for this substance, whilst it adds largely to the weight of the gas, diminishes greatly its illuminating power. With pure gas, there can be no doubt that the specific gravity affords, in most cases, a very useful indication, though, where great accuracy in this way is sought, the necessary conditions to success are not trifling. I do not know whether it has been observed or not by others, that some time ought to elapse, when an exhausted balloon has been filled with gas, ere it is removed to the balance, and that this time varies in length according to the nature of the gas. A flask holding, as mine does, 200 cubic inches, requires for atmospheric air not less than ten minutes, and for ordinary coal gas about five minutes, ere the heat generated by the admission of the gas has thoroughly dissipated itself. If a flask, recently filled with atmospheric air, be suspended on a delicate balance and carefully counterpoised, it will be found to go on gaining in weight for ten minutes by the contraction of the rarefied air it contains, and, consequently, this period must be allowed to expire in all cases, or the gas afterwards experimented upon will be made to have a higher specific gravity than the truth. Dr. Ure has proved that the heat generated in the way alluded to with atmospheric air is equal to 2° Fahr. It is to be regretted, however, that Dr. Letheby should have adopted 29 inches of mercury as the barometrical standard of his observations upon specific gravity, since all other men of science in this country have long used, and still use, a barometrical pressure of 30 inches, and there is no advantage to be gained by such a change.

In respect to the value of the Central gas by spermaceti, Dr. Letheby and I differ to the extent of 8½ per cent. This difference is not excessive, and, without attempting to account for it, I will simply describe the mode in which my results are obtained. A piece of spermaceti candle is first lighted and suffered to burn until the wick freely protrudes beyond the edge of the flame; it is then blown out, and the combustion of the wick prevented by the dexterous application of a rod of spermaceti to the extreme end. This candle is next counterpoised on a balance, and lighted at some precise moment, which is noted. A series of half-minute observations are now recorded to the extent of about twenty, which is easily done in the space of a quarter of an hour; at the end of which time the candle is blown out, and weighed to ascertain its loss. The above indications are then summed up, and the result divided by their number for an average, which is next reduced to its final amount by multiplication into the quantity of sperm burnt by the candle. Thus, suppose the candle to have burnt 32 grains in 15 minutes, or 128 grains per hour, and the indications, 20 in number, to have given an average of 11·7 candles, then—

120 : 11·7 :: 128 : 12·48; or, 12½ candles.

I have not found any other mode of investigation worthy of confidence.

Whilst upon this subject, I ought to mention a circumstance of the greatest consequence in my opinion towards the perfection of photometry. A short while since my friend, Mr. Maurice Scanlan, suggested to me the employment of paraffine as a photometrical agent; and I have been favoured by Messrs. J. C. and J. Field, of 12, Wigmore-street, Cavendish-square, with a few pure paraffine candles for my experiments. The results are of the highest possible interest, and prove that paraffine is not only superior to spermaceti in the uniformity of its combustion, but that it also affords for equal weights considerably more light than either wax or spermaceti. Nothing can exceed the beauty of the light emitted by paraffine; and its uniformity is so great that the extreme variation in twenty minutes, which took place with a five cubic feet per hour burner, was no higher than from 12·3 to 12·4 candles; whereas, with spermaceti and the same gas, the variation reached from 11·9 to 12·8 candles. Messrs. Field are about to commence the manufacture of pure paraffine candles possessing a photometrical power exactly equal to 120 grains of the best sperm, and at a price very little higher than that of spermaceti. It seems to me that this is a favourable moment for all parties to unite together in fixing one universally acknowledged standard for the whole kingdom, since paraffine possesses this unique advantage that its absolute purity is easily tested, and its composition is fixed and determined by nature all the world over. It might, indeed, be supposed that this was also the case with spermaceti, but the very reverse is the fact; for, not only does spermaceti vary according to the health and age of the animal which affords it, but the spermaceti from the head is very different indeed from the spermaceti of the body oil, and possesses both a different colour and a different specific gravity—that from the head being much lighter than that from the body, and of a blue instead of a yellow tint. Every sperm-candle maker knows that his moulds, when filled with spermaceti from the head, will not afford candles having the requisite weight corresponding to their number; whereas, with spermaceti from the body, the weight is apt to exceed that which the candle represents. Thus, a pound of sixes of the first will not weigh a pound; whereas a pound of sixes of the last may weigh more than a pound. I always select and use the blue, or head spermaceti candles for my experiments; and it is not improbable that other experimentalists, who are not aware of the difference, may happen to prefer the yellow or body candles. At all events, as a great difference does exist between these kinds of spermaceti, I venture to solicit the aid of all persons interested in photometry, that a better standard may be agreed upon and universally adopted.

I now come to the subject of the gas supplied to the City of London by the different companies during the past month. The Central Company, as usual, occupies both ends of the scale—the highest in impurity, and the lowest in illuminating power. The City Company supply a gas unequalled in illuminating power, but pretty generally contaminated with "an infinitesimal small quantity" of carbonic acid. These almost uniform traces of carbonic acid lead me to think that the purifying surface of this company's apparatus, though quite sufficient for summer consumption, is unequal to the increased demand of a winter's supply; and hence, perhaps, it may

increase with an increased production of gas. Of the gas from the Chartered Gas Company, I am able to speak in the very highest terms of commendation. During the whole month it has been irreproachably pure, not the slightest indication of carbonic acid has ever appeared; and I thank the officers of that company for demonstrating to me the possibility, in a practical way, of removing from coal gas its two most objectionable impurities—carbonic acid and sulphuretted hydrogen. Such information is worth having at this moment, and I shall not rest until its application has become universal in the City of London. Why the Central Company should continue to deluge the town with its poisonous and pestiferous "infinitesimal small quantities" is now a question for the public. I am in a position to show, that gas can be completely and thoroughly purified ere it is sent out to the public; and, *malgré* the seductive influence of a sheriff's dinner, I believe that the citizens are at length alive to the importance of securing that blessing, and will have it.

From Mr. C. Pearson I have received two letters marked "private," and containing nothing to the purpose of my communication to that gentleman, except a promise yet unfulfilled, to reply more explicitly to my statements. If this promise is kept, I will not fail to publish the result, and also my reply to it in the JOURNAL for next month; if the promise is not kept, I pledge myself to publish what I have, and to reply thereto in the most complete and satisfactory manner possible; for silence is equivalent to consent, and I have already asked permission.

Not content, it would appear, with their unqualified rebuff in the Poultry, the agents or agent of the Central Company had an idea of getting up, or rather of getting down, another photometrical establishment, of the "hole and corner" kind, so much beloved by Mr. Deputy Harrison. "The boy Jones," to whom I am indebted for this intelligence, tells me that a certain cellar, situated on the southern half of a line, which may be drawn from Cornhill to York Minster, was sought after about three weeks ago for the purpose to which I have alluded. The proprietor of the cellar (a most worthy alderman of the City of London), was, however, unwilling, as well he might be, to pervert the most useful part of his premises to such a purpose; and there the matter ought to have ended, but did not, as the subsequent proceedings of the Court of Sewers can testify.

I cannot conclude these remarks without commenting upon what Mr. Dakin calls, "the efforts and example of an able and scientific engineer." By consulting my photometrical diary, it will be seen, that on the 28th and 29th of the last month, the Central gas suddenly fell to 9·8 and 9·9 candles respectively, and that it has since been repeatedly below 12 candles. Now, I will ask any ordinary gas engineer, what he would think of that scientific engineer who, knowing that he had four miles of recently de-naphthalised main before him, and knowing, too, that cold weather was coming on, and that frosty nights had set in, took no care to add such an extra amount of cannel coal to his usual charge as might compensate for the excessive condensation of hydro-carbon compounds consequent upon such a condition of things? The very fates seem banded in opposition to the laudatory romancings of the Great Central Chairman—he never soars aloft without tumbling down upon the unlucky object of his flighty praise; and a cause never becomes so hopelessly ridiculous as when he seriously takes it up.

The following is a copy of my photometrical results, from Sept. 10 to Oct. 9, inclusive:—

*General or Monthly Average of the Heating Power of the Gases supplied to the City of London by the Gas Companies mentioned, between the 10th of September and the 9th of October inclusive.*

| | Grains of Water evaporated by 1 cubic foot of Gas burnt at the rate of 10 cubic feet per hour. |
|---|---|
| CITY COMPANY..... | 2745 |
| CHARTERED COMPANY ..... | 2702 |
| CENTRAL COMPANY..... | 2634 |

*Daily Record of Observations upon the Gases mentioned below, the specific gravity being taken by means of an air pump and flask with a delicate balance, the condensation by bromine, and the illuminating power by a spermaceti candle, burning about* 120 *grains per hour, but always reduced to this gravity by calculation.*

| Date. | CENTRAL COMPANY. | | | CITY COMPANY. | | | CHARTERED COMPANY. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Specific Gravity. | Illuminating Power in Standard Candles. | Condensation. | Specific Gravity. | Illuminating Power in Standard Candles. | Condensation. | Specific Gravity. | Illuminating Power in Standard Candles. | Condensation. |
| Sept. 10 | ·391 | 12·2 | 3·7 | ·413 | 13· | 4· | ·404 | 12·6 | 3·9 |
| 11 | ·403 | 12·3 | 3·7 | ·415 | 13·4 | 4·1 | ·402 | 12·3 | 3·8 |
| 13 | ·400 | 12·2 | 3·7 | ·419 | 13·2 | 4· | ·408 | 12·9 | 4· |
| 14 | ·406 | 12·9 | 4· | ·421 | 13·5 | 4·1 | ·405 | 12·6 | 3·9 |
| 15 | ·400 | 12·1 | 3·7 | ·408 | 13·5 | 4· | ·404 | 12·5 | 4· |
| 16 | ·407 | 12·7 | 4· | ·409 | 13·6 | 4· | ·403 | 12·7 | 4· |
| 17 | ·390 | 11·2 | 3·5 | ·402 | 12·7 | 3·9 | ·400 | 12·5 | 3·9 |
| 18 | ·391 | 11·2 | 3·5 | ·414 | 12·6 | 3·9 | ·402 | 12·2 | 3·8 |
| 20 | ·404 | 12·6 | 4· | ·409 | 12·7 | 3·9 | ·401 | 12·5 | 3·9 |
| 21 | ·402 | 12·3 | 3·7 | ·410 | 12·8 | 3·9 | ·400 | 12· | 3·8 |
| 22 | ·406 | 12·6 | 3·8 | ·412 | 13· | 4· | ·403 | 12·4 | 3·9 |
| 23 | ·405 | 12·7 | 3·8 | ·403 | 13·8 | 4·1 | ·408 | 12·9 | 4· |
| 24 | ·406 | 12·2 | 3·6 | ·409 | 13·2 | 3·9 | ·409 | 13·1 | 4· |
| 25 | ·403 | 12·2 | 3·6 | ·406 | 13· | 3·8 | ·404 | 12·6 | 3·9 |
| 27 | ·404 | 12·3 | 3·6 | ·413 | 14· | 4·2 | ·409 | 13· | 4· |
| 28 | ·388 | 9·8 | 3·1 | ·402 | 12·1 | 3·7 | ·392 | 11·1 | 3·5 |
| 29 | ·391 | 9·9 | 3·1 | ·403 | 12·2 | 3·6 | ·402 | 12· | 3·6 |
| 30 | ·398 | 11·2 | 3·5 | ·403 | 12·4 | 3·7 | ·402 | 12·1 | 3·7 |
| Oct. 1 | ·392 | 12·2 | 3·7 | ·405 | 13· | 3·9 | ·403 | 12·3 | 3·7 |
| 2 | ·401 | 11·8 | 3·6 | ·410 | 13·5 | 4·1 | ·409 | 13·1 | 4· |
| 4 | ·403 | 11·8 | 3·6 | ·407 | 13·2 | 4· | ·403 | 12·4 | 3·8 |
| 5 | ·397 | 11·9 | 3·6 | ·409 | 13·4 | 4· | ·410 | 13·2 | 4· |
| 6 | ·400 | 12·4 | 3·8 | ·412 | 13·6 | 4·1 | ·409 | 13·1 | 4· |
| 7 | ·398 | 12·6 | 3·8 | ·410 | 13·2 | 4· | ·405 | 12·3 | 3·7 |
| 8 | ·403 | 12·3 | 3·6 | ·405 | 12·9 | 3·9 | ·408 | 12·9 | 4· |
| 9 | ·400 | 12·1 | 3·6 | ·405 | 12·8 | 3·9 | ·403 | 12·6 | 3·9 |
| AVERAGE | ·400 | 11·9 | 3·6 | ·409 | 13·1 | 3·9 | ·404 | 12·5 | 3·9 |

*No.* 7 A, *Pancras-lane, City, Oct.* 9, 1852. LEWIS THOMPSON.

## PAROCHIAL ASSESSMENT OF GAS WORKS.

SIR,—You occasionally invite attention to the parochial assessments of gas works; and the enclosed—just made by Mr. Charles Penfold and Mr. Robert Lewin on our works—may have interest for some of your readers.

On referring to the JOURNAL of July, 1849, I find a report of the appeal of the Phœnix Company against the assessment of the same Mr. C. Penfold for the parish of Greenwich, which is made the parent for our small works, and brings forth a chip resembling the old block in all its lineaments and complexion. In 1846-7 we applied to Mr. Penfold for an opinion respecting our then rating, and furnished him with all necessary information to form a correct judgment, and paid him his fee of £8. 8s. In 1852 he is appointed by the Board of Guardians to assess the whole parish, and now makes use of the information then given to him against us. He ascertained the quantity of coals from our man at the works; assumes the rental obtained from a ton of coals to be invariably the same; and then makes a rule-of-three sum on our old price per 1000 feet, to arrive at the true amount of our income. The present price to private consumers is 7s. 6d. per 1000 feet, the street lamps are about 5s., and the town clock is to be lighted without charge. Against this assessment we shall be obliged to appeal, as the surveyors persist in the correctness of their calculations, although we have told them that coals cost us on an average, last year, £1. 1s. 5d., and that our income is not what they have set it at; that the coke for sale is not more than 19 bushels per ton of coals; that liquor cannot be sold at any price; and all our expenses are much higher than their formula expresses.

It would be useful to these surveyors, if, Mr. Editor, you would take them as apprentices for a few years, for initiation into the mysteries of gas-making and its profits. J. S.

N. B. In the summer six months, two retorts supply all our gas.

VALUATION OF THE ——— GAS WORKS.—Valuers: Mr. C. PENFOLD, of Croydon; and Mr. R. LEWIN, of Cheam.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| By a return made by this company, of their accounts for 1846-7, it appears that 175 tons of coal produced gas, which realised £587; we say, therefore, that at that rate the present consumption of 282 tons will produce | | | | | | | | £946 | 0 | 0 |
| The gas made by 282 tons of coal, at 9200 feet per ton, is | | | | | 2,594,000 | cubic feet | | | | |
| Then allow 10 per cent. for leakage and condensation | | | | | 259,000 | ,, | | | | |
| There remains for sale | | | | | 2,335,000 | ,, | | | | |
| The expenses of producing which are:— | | | | | | | | | | |
| Coals per ton | £0 | 18 | 0 | | | | | | | |
| Less the residual products, after providing the necessary fuel for heating the retorts, viz.: 26 bushels of coke, at 4d., 8s. 8d.; 2 bushels of breeze, at 1½d., 3d.; 10 gallons of tar, at 1d., 10d.; liquor, 2d. | 0 | 9 | 11 | | | | | | | |
| | | | d | | | | | | | |
| Cost of 9200 feet of gas | 0 | 8 | 1 | = | 10·50 | per 1000 feet | | | | |
| Lime, 282 bushels, at 4d. | | | | | 0·43 | ,, | | | | |
| Purifying men and firemen | | | | | 3·75 | ,, | | | | |
| Wear and tear of retorts and furnaces | | | | | 3·50 | ,, | | | | |
| ,, other apparatus, tools, &c. | | | | | 1·75 | ,, | | | | |
| Salaries of secretary, engineer, &c. | | | | | 3·00 | ,, | | | | |
| Inspector and collector | | | | | 2·75 | ,, | | | | |
| Stationery and law | | | | | 1·25 | ,, | | | | |
| Lamplighting | | | | | 3·00 | ,, | | | | |
| Total cost of gas | | | | | 29·93 | ,, | | | | |
| Cost of 2,594,000 feet of gas | | | | at | 29·93 | ,, | = £324 | 0 | 0 | |
| Tenants' profit on capital of £400, employed in carrying on the works, at 50 per cent. per annum | | | | | | | 200 | 0 | 0 | |
| Allowances of dilapidation, rates and taxes, and bad debts, at 6d·08 per 1000 feet | | | | | | | 65 | 0 | 0 | |
| Add one-half more of the expenses of manufacturing on account of the smallness of the concern | | | | | | | 162 | 0 | 0 | |
| | | | | | | | | 751 | 0 | 0 |
| Net rateable value per annum | | | | | | | | 195 | 0 | 0 |
| For the gross rateable value, add the repairs and insurance at 5d·25 per 1000 feet | | | | | | | | 57 | 0 | 0 |
| * Gross rateable value per annum | | | | | | | | £252 | 0 | 0 |

## Register of New Patents.

EDWARD MOSELEY PERKINS, of 67, Mark-lane, in the City of London, for "*Improvements in the manufacture of cast metal pipes, retorts, or their hollow castings.*" Patent dated March 8, 1852.

This invention consists of a mode of constructing hollow core barrels, to be used in the manufacture of cast metal pipes, retorts, and similar castings, without necessitating the use of straw or hay bands, as required with core bars of the ordinary construction. The improved ones are capable of being contracted or expanded at pleasure, whereby their withdrawal from the mould is much facilitated.

The core barrel is made of three or other convenient number of parts, each forming an arc of a circle, arranged in such manner that they may be expanded simultaneously, so as to obtain the desired diameter for a core; these three parts are perforated, and are to be used in like manner to ordinary core barrels. Within are fixed staples and rings, which keep the parts together, and yet allow of the barrel being expanded or contracted. The interior surfaces of the parts forming the core barrel are provided with inclined planes or wedges, upon which sundry projecting arms, staked on a central shaft or axis, act, the forcing of which arms along the inclined planes causes the parts or sections to be pressed outwards. At the end of the axis or shaft is formed a screw, by which the arms are raised and lowered, and thus brought into contact with the inclined planes before mentioned. The nut by which the screw is worked is fixed into a cross head, having as many arms as there are sections in the core barrel, each arm having a T-headed slot at the end to receive the projecting stem fixed on each part or section of the core barrel.

*Claim.*—The mode herein described of making core barrels used in the manufacture of cast-metal pipes, retorts, and other hollow castings.

## REICHENBACH'S SHOP-FRONT LAMP.

The lighting of shops by external gas lights has long been practised by our neighbours across the Channel, and is now becoming general in the leading thoroughfares of the metropolis and chief provincial towns. The products of combustion being discharged direct into the atmosphere, the temperature of the shop undergoes no augmentation, nor can injurious effects be exercised upon goods of delicate colour or texture in an apartment so lighted. Annexed are illustrations* of one of the latest lamps of this description, manufactured by Mr. Reichenbach, of the Borough-road, Southwark.

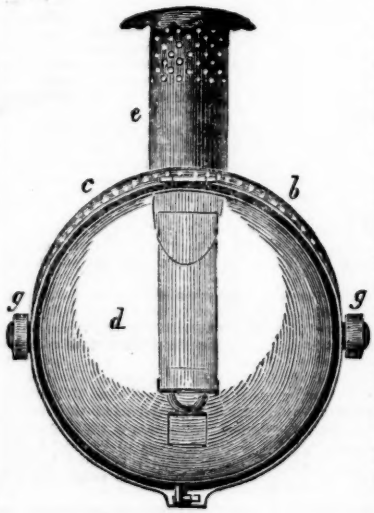


Fig. 1.

Fig. 1 is a front elevation, and fig. 2 a side elevation; *a* is the pendent gas-burner; *b*, the concave reflector, in the the focus of which the gas-burner is placed; *c* is a rim of perforated metal, to which the frame of the parabolic glass, *d*, is hinged, so as to admit of its being readily opened and cleaned; *e* is the chimney; *f*, a set screw, for adjusting the position of the reflector; *g*, *g*, an arm secured to the pendant, *a*, upon the end of which the reflector swings. The shape of the lamp is well adapted for the complete diffusion of the light over the whole shop window, whilst the facility of adjustment is a great convenience.

* These excellent cuts have been obligingly placed at our disposal by the courtesy of the Editor of the *Artizan*.

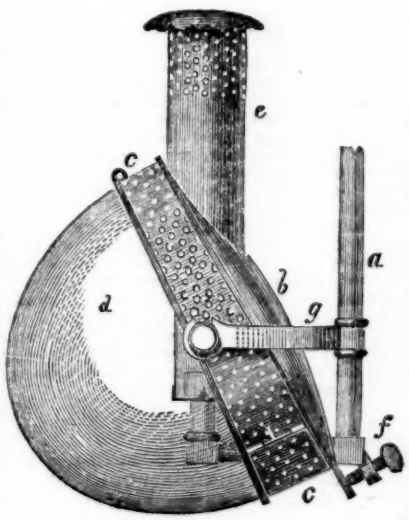


Fig. 2.

## Miscellaneous News.

SCOTT ON WATER SUPPLY*.—The extract from Mr. Scott's report on the supply of water to the town of Swansea—which we reprinted in our last number—conveys a very imperfect idea of the valuable information contained in this work, and to which the statement we published forms only a portion of the appendix. The work itself will amply repay perusal by all who are interested in improving the supply of water to towns; and whether under the heads of, nature of the supply, existing state, proposed new works, quantity, quality, price, or outlay, every department is treated with equal ability and perspicuity.

* Published by W. Clowes and Sons, No. 14, Charing-cross.

## DR. LETHEBY'S SECOND REPORT ON THE GAS SUPPLIED BY THE GREAT CENTRAL GAS CONSUMERS' COMPANY.

TO THE HONOURABLE THE COMMISSIONERS OF SEWERS OF THE CITY OF LONDON.

Gentlemen,—I have the honour to submit to you my Second Report on the illuminating power and chemical quality of the gas supplied by the Great Central Gas Consumers' Company to the City of London.

During the past quarter I have made 211 experiments on the light-producing power of this gas. These experiments have been instituted with three kinds of burners, viz. :—with the argand of 15 holes and a seven-inch chimney, consuming, as specified in the act, 5 cubic feet of gas per hour; secondly, with a No. 4 fish tail, which consumed 3·75 cubic feet per hour; and thirdly, with an ordinary batswing, which likewise consumed 3·75 cubic feet per hour. The comparison of the light produced by each of these burners has been made with two kinds of illuminating agents, viz. :—with a wax candle of 6 to the pound, burning at the rate of 120 grains per hour; and with a sperm candle, also of 6 to the pound, consuming on an average 131 grains per hour. The following are the results :—

1. The light of the argand, as measured by that of a wax candle, was, when at its greatest luminosity, equal to 19·7 candles of 120 grains per hour; at its least intensity it was equal to 12·7 of such candles; and, during the whole quarter, the mean luminositing power was equal to 15·3 of them.

When the light from the burner was compared with that from a spermaceti candle of 131 grains per hour, it was, on the average of the whole quarter, found to be equal to 12·7 of such candles.

2. The light emitted from the No. 4 fish-tail burner was equal to 9·1 wax candles, and 7·9 sperm.

3. That furnished by the batswing was of the mean intensity of 8·7 wax candles, and 7·1 sperm.

These results show that the average illuminating power of the gas supplied by the company during the last quarter has been fully one-fourth greater than that required by the act of Parliament.

In my former report I stated that the mean illuminating power of the gas, for the quarter ending in May last, was as great as that furnished by 17 wax candles, each of 120 grains per hour. Now, as this statement may possibly lead to the conclusion that there has been a falling off in the mean luminosity of the gas during the last three months, I beg to remark that the difference of my results, now and then, has arisen not so much from inferiority in the quality of the gas, as from the circumstance that I have lately adopted a more rigorous mode of investigation—as by testing the illuminating powers of none but the *direct* rays from the burner and candle. This method was suggested to me by Mr. Barlow, who is the Editor of the JOURNAL OF GAS LIGHTING; and it was, I believe, originally contrived by Mr. Lewis Thompson. It consists in the employment of an apparatus which completely shuts out from the photometer all the rays of light but those proceeding directly from the illuminating agents. I am aware that objections may be raised by gas-manufacturers to this contrivance, on the ground that it does not fairly represent the conditions under which gas is usually employed as a source of light; but I am satisfied that the instrument is a very delicate one, and that it is constructed on principles which are strictly correct; I shall, therefore, continue to use it until a better photometer is invented.

Finally, I beg to state that I have found the specific gravity of the gas to range between ·404 and ·425. These numbers represent the density of the gas at a temperature of 60° Fahrenheit, and a pressure of 29 of the barometer. They indicate, when placed in opposition with the results obtained with the photometer, that the gas is of good illuminating power, and that it is rich in the denser hydro-carbons.

With respect to the chemical quality of the gas, I have to state that it has on several occasions during the last month been contaminated with sulphuretted hydrogen, and that it has in some instances been overcharged with bisulphuret of carbon. Both of these impurities have the very great disadvantage of generating a corrosive product during the combustion of the gas—a product that is not only injurious to the health and comfort of those who breathe it, but is likewise destructive to property, by rotting and tarnishing the more perishable articles of furniture, &c.

In addition to this, I ought to remark that the first-mentioned impurity has the pernicious quality of discolouring the brighter kinds of lead paint. In my examinations of the gas furnished to the City of London by other companies during this period of time, I have also found that the same impurities have been too often present; and I beg leave to suggest that it is highly desirable, both for the sake of health and property, that some means should be taken to ensure a more perfect manufacture of the gas, and that every attention should be paid to ventilation, so as to carry off the noxious products generated during its combustion.

I have the honour to remain, your faithful servant,

HENRY LETHEBY, M.B.

*London Hospital, Aug.* 10, 1852.

## CITY OF LONDON COURT OF SEWERS.

GUILDHALL, SEPT. 21, 1852.

The Court sat this day at twelve o'clock—Deputy Peacock in the chair. The following notice appeared upon the paper of business:—"To receive a memorial from the Great Central Gas Consumers' Company, on the subject of testing the gas supplied to the City of London."

After the transaction of the ordinary weekly business,

The CHAIRMAN said, as there was no one present from the Central Gas Company to support the memorial, of which notice had been given, the matter must fall to the ground. He could assign no reason for the absence of Mr. Dakin, who had promised to attend.

Mr. H. L. TAYLOR said, he thought he could throw a little light on the subject. He had put himself to some little inconvenience in order to be present in the court that day, as his curiosity had been excited to learn the contents of the memorial of which they had had notice.

Deputy HARRISON rose to order. The memorial was not before the court, and it was, therefore, incompetent for Mr. Taylor to refer to it. (Hear, hear.)

Mr. TAYLOR contended that he was perfectly in order. He was about to give some explanation of the reason why the memorial, of which notice had been given, was not before the court.

Deputy HARRISON said, if Mr. Taylor persisted in doing so, he would move the adjournment of the court.

Mr. TAYLOR said, he held in his hands a document of great importance, to which he was desirous of calling the attention of the court.

The CHAIRMAN thought Mr. Taylor should have given notice of his intention.

Mr. TAYLOR said, the document he held in his hand was the report on the quality of the Great Central Company's gas, which Dr. Letheby laid before the court at its last sitting.

Deputy STEVENS said, it was most irregular for Mr. Taylor to persist in addressing the court on the subject; though, for his own part, he did not know what Mr. Taylor might have in view, and might possibly vote for it, had it been in order.

Deputy LOTT said that, if Deputy Stevens attempted to vote on the subject, he would ask that the standing order be read, relative to members voting on questions in which they were pecuniarily interested.

Mr. TAYLOR said, the matter he wished to direct the attention of the court to was one which intimately concerned the public, inasmuch as it appeared that the whole of the facts of a most important report, made to the commission by a duly appointed officer, had been withheld. (Hear, hear.)

Mr. DAKIN, the chairman of the Great Central Gas Company, accompanied by Messrs. Bennoch and Bradbury, here entered the court, and handed up the following memorial, which was read by the clerk at the table:—

"TO THE HONOURABLE THE COMMISSIONERS OF SEWERS FOR THE CITY OF LONDON.

"Gentlemen,—We perceive by the newspapers that Dr. Letheby, the officer appointed by the Corporation to test the gas supplied to the citizens, has employed a newly-arranged photometer, which notes the illuminating power of gas at a much lower standard than the photometers heretofore used for the same purpose.

"Gas, and all other artificial as well as natural illuminating agents, communicate light to surrounding objects indirectly by diffusion and reflection, as well as by direct radiation. The practice in ascertaining the luminosity of gas has hitherto been by measuring the whole quantity of light by the disk of a photometer accessible at all sides, precisely the same as the whole quantity is enjoyed in its every-day consumption and use. It is the object of this newly-arranged instrument to measure the illuminating power of the gas from radiation only, carefully excluding by means of a shade all its diffused and reflected light.

"As the uniform practice has been, and still is, in every other professor's hands than Dr. Letheby's, to use the ordinary photometer which records the whole volume of light as it appears upon an unshaded disk, the general use of this new instrument would be to place all gas measured by it at a disadvantage as compared with candles and oil, or any other public light; and by employing it to test our gas alone, our company might be disparaged in the estimation of the public, who may read the comparative power of different gases by the record of figures alone, without appreciating the difference of the two instruments by which those figures are obtained.

"By measuring our gas with a photometer of a higher standard, and so noting it at a lower rate, while the gas of other companies is meted by a lower standard, the record of the two gases placed in juxtaposition might quote ours at a lower figure; although, measured by similar instruments, ours might actually be of a much higher rank. We purchase from the contractor, and sell to our customers, gas estimated according to its commercial value, having regard to its purity and illuminating power, and measured by the ordinary photometer, arranged according to scientific principles, laid down expressly for our guidance by four of the most eminent chemists of the day.

"If Dr. Letheby, after longer experience and more mature reflection, shall think it right to continue the use of the instrument mentioned in his report, we will not offer the slightest objection. On the contrary, we are rejoiced to find the active mind of so distinguished a chemist exerted in the pursuit of new discoveries for testing the various properties of this important article of daily use.

"We, however, request permission to ask Dr. Letheby to furnish us likewise with a record of our gas, noted at the same time by the photometer in ordinary use, so that the difference may be at once made the subject of observation.

"We also respectfully repeat the application we made to your worshipful board on the 18th of March, 1852, to call upon the Chartered and City Gas Companies to submit the gas they supply to examination by Dr. Letheby, in redemption of the solemn pledge given by the chairman of both companies when before your board on the 4th day of December, 1849. On that occasion, without condition or qualification, they both declared that their respective companies would take upon themselves all the obligations voluntarily assumed by this company, under the provisions of their act of Parliament, amongst which number, we need hardly say, is the important obligation to submit the gas supplied to the citizens to be tested and recorded by an impartial and capable public officer, selected by the Common Council, and paid by the parties whose gas is submitted for examination.

"It is our intention to apply to the Court of Common Council for leave to erect a temporary building on the ground that has lain for so many years vacant at the western end of Cheapside. We propose that this building, though removable at a week's notice, shall be made ornamental, and fitted up with a photometer in common use, and with any other that it may be thought desirable to employ, together with such chemical apparatus as may be useful in testing the purity as well as the illuminating power of gas.

"There is a peculiarity about this locality which renders it beyond all others eligible for the purpose. Close to this spot the mains of the Chartered and City Companies, as well as our own, pass; so that they may be all connected with the building without difficulty or expense.

"We propose that two rooms shall be provided in the building—one for the private experiments of Dr. Letheby; the other to be open at all proper hours to the gas consumers of the City, as well as the experimental chemists and other scientific persons, to enable them daily to tell the corporative as well as the positive merits of the gases supplied by all the companies.

"It may be said that this is a novel plan. We believe it is not entirely without precedent at Birmingham. But if it is, we ask whether it is not just and reasonable? The principle upon which this company is founded is novel likewise. It is the only company based upon popular principles, and governed by the stringent provisions of an act of Parliament which regulates quantity, quality, and price. The gas manufactured for the citizens occupying a space not exceeding one square mile amounts at this time to 600,000,000 or 700,000,000 of cubic feet—a circumstance wholly without parallel in the history of gas lighting. We have reason for believing that, when it shall be further improved and cheapened so as to extend its use among all classes, the consumption will be further increased 30 or 40 per cent.

"The gas supplied by this company is, and it is reported so to be by Dr. Letheby, not only superior to the article supplied by the other metropolitan companies before ours was brought into existence, but its illuminating power is more than one-fourth higher than our act of Parliament standard requires.

"The price charged in the City before our company was formed, at the time it was supplied of the lower standard, was 6s. or 7s. per 1000. It is now charged by all the companies at 4s.; and we anticipate the period when the improvements in science will enable us still further to improve the quality of the article, and the extension of the demand will enable our company further to reduce the price till it reaches 3s. 6d., and ultimately 3s., the price at which we always thought the inhabitants of a district so thickly populated with large consumers as the City of London may ultimately expect to be well served.

"The gas manufactured by us for private consumers during the year ending in June amounted to about 230,000,000, which leaves us free from all anxiety as to the security of our act of Parliament dividend; but without an increased demand we shall not be justified, according to the terms of our deed, in making any reduction in price.

"Our works are constructed and our mains are laid down upon a scale that will enable our company to manufacture and send out 420,000,000 without further outlay of capital, and with a very small addition to our expenses of staff and management. A further outlay of about £50,000, if required, would enable us to manufacture the 'maximum' amount of our original estimates, namely 720,000,000.

"We have made arrangements with our contractor, by which he is bound to supply the company, at a graduated scale of charge, with gas of a quality superior to the requirements of the act of Parliament, and of a standard which the directors are authorised to fix, as the taste of their customers may require it.

"Since this alteration has been made upon our original plan, our consumption has been steadily on the advance. We are now manufacturing and sending out at the estimated rate of 275,000,000 cubic feet per annum. As at this rate of increase a considerable time must elapse before we shall attain the consumption which will enable us at one step to reduce the price to 3s. 6d., we propose to adopt a graduated scale of descent.

"The directors intend to propose to their shareholders, at their October meeting, to reduce the price by a descending scale, at the rate of 1d. per 1000 for every 20,000,000 increased consumption beyond their present estimated rate of supply. The directors, however, are most anxious, in the first place, to secure to the consumers the means of having the purity and brilliancy of the article ascertained, not only by the public officer appointed by the Corporation, but also by themselves; and they are desirous that this shall be done, as well by testing it with any positive standard of excellence that may be proposed, as by a close comparison with the gas of the other companies placed in juxtaposition with their own.

"Although the quality of gas cannot be ascertained by ordinary weights and measures, like most other articles of domestic use and consumption, yet the progress of science has afforded facilities for ascertaining its purity and illuminating power which leave the mode of testing gas no longer a mystery known only by the learned, to be applied by men of science alone.

"Dr. Letheby reports, we find, that there is still in our gas, and in the gas of the other companies, the presence of certain impurities, which, though existing in infinitesimal small quantities, are not sufficiently minute to escape the searching scrutiny of a rigid chemical analysis. We feel ourselves entitled to say that the efforts and the example of an able scientific engineer have greatly elevated the quality of the gas supplied by our own and other companies, notwithstanding which we have not been satisfied, in this age of progress, to stand still and let even 'well alone.' Measures have, therefore, been taken to effect additional improvements in our process of manufacture. We do not court, as we do not fear, a revival of the ungenerous opposition from the other companies, to which we were so long subjected. We do, however, seek the means of instituting a comparison, and we court an open and manly competition with our rivals in trade, by which we make no doubt Dr. Letheby and the public will be satisfied, and the quality of the gas of all the companies may be improved.

"Signed and sealed by order of the Board,

"THOMAS DAKIN, Chairman."

The CHAIRMAN inquired whether Mr. Dakin had any further communication to make?

Mr. DAKIN said, he was very glad to have an opportunity of appearing once more before the Commissioners of Sewers, especially on an occasion which he felt must be interesting to the court itself. He was not a little gratified to know that, instead of his appearance being considered as an intrusion upon their time, he had absolutely been required by them to present himself that day. He was sure the court would see at once the fairness of the request contained in the memorial just read. The company which he represented simply asked, in the first place, that the quality of the gas supplied by them should be ascertained, not by an instrument recently invented, but by the one in ordinary use at the time when they bound themselves to a certain standard of illuminating power. (Hear.) It was not that they feared the test of the modern photometer, for even by that it was apparent that their gas was 25 per cent. better in quality than they had pledged themselves to supply; but the public had long been accustomed to judge of the facts by an instrument which not only collected the direct rays of light, but those which were diffused and reflected on all sides. In the next place, they asked that the other companies should fulfil a pledge which they had publicly given to the Great Central Company, viz., that they would subject themselves to the same conditions as they had done. He would state most explicitly that, in making this request, they were not influenced by the spirit of rivalry, but by a desire for the advantage of all the companies. If they could satisfy the public beyond all controversy as to the superiority of the gas at present manufactured over that which formerly was supplied, the consumption for the City of London would be, he was persuaded, more than doubled. (Hear, hear.) Such an increased consumption would, of course, benefit all the companies. He (Mr. Dakin) asked these things of the Court of Sewers, as the guardians of the interests of the public in the matter; and he did so with the more confidence, when he remembered that at the outset of the career of the company which he represented, they undertook duties which were not imposed upon them by that court, but which they had expressed themselves satisfied had been honourably carried out. (Hear, hear.)

Mr. TAYLOR: Which company do you allude to when you speak of objections being raised to the testing of gas?

Mr. DAKIN: I have not said that either of the old companies object. One of them (the City Company) has now promised to take the matter into consideration; the other (the Chartered), being under contract with you, can, of course, be required to submit to the test.

Deputy LOTT: Which company do you accuse of evasion? Is that company here now?

Mr. DAKIN: I have not used the word evasion, at least in the sense you take it. I simply say that the matter has been put off—they have promised to "take it into consideration."

Deputy LOTT: I wish to know whether the company against which you bring that accusation is here now?

Mr. DAKIN: I disclaim altogether having made an accusation. I simply used a phrase which, it will be in the recollection of the court, was employed by the company itself.

Mr. TAYLOR: You allude to the City Company, I presume?

Mr. DAKIN: Yes.

Mr. TAYLOR: Are you not yourselves the cause of an answer not having been given definitively?

Mr. DAKIN: On the contrary, we used all our exertions to induce that company to do so before we came here.

Mr. TAYLOR: But are you not in negotiation with the City Company for an amalgamation?

Mr. DAKIN: We have not been so since the dissolution of Parliament. At that time we had it in contemplation.

Mr. TAYLOR: Is the treaty for an amalgamation declined?

Mr. DAKIN: Certainly not. I may say that I am acting for all the companies in this application.

Mr. TAYLOR: But you do not represent all the companies?

Mr. DAKIN: I represent my own company, but it is for the benefit of all.

The deputation having retired from the bar,

Deputy HARRISON rose and moved, "That the memorial be referred to the General Purposes Committee, to examine and report whether it is expedient for this commission to take any step in the matter." Believing it to be quite unnecessary, in the present state of the question, to discuss it in open court, he would refrain from offering any observations in support of his motion.

Mr. T. H. HALL recommended that the matter should be gone into in a full court, rather than in a small committee, if it were entertained at all.

Deputy HARRISON said, there were questions of detail connected with it which rendered it unwise to do so. Besides, the resolution of the court, which it was now proposed in some respects to vary, had been adopted on the recommendation of a sub-committee. (Hear.) It was also probable that a communication with the other companies might altogether prevent the necessity of publicly discussing the matter.

Deputy HOLT seconded the motion, for the reasons stated by the mover. He sincerely trusted that there would not be a recurrence to the old warfare in that court between the different gas companies. He did not see that it was possible to improve the gas of the Great Central Company; but, inasmuch as that company had seen fit to send a memorial asking for the interference of the court, he thought the matter ought to be referred. If the committee deemed it expedient that there should be a public discussion, they would report that as their opinion to the court.

Deputy OBBARD thought there were serious objections against entertaining the memorial at all. (Hear.) It first of all asked that a different photometer to that used by Dr. Letheby should be employed. Now, in his (Deputy Obbard's) opinion, it would be wrong in that court to hamper by any restriction of that sort the investigations and mode of research of an eminent public officer appointed by the Corporation. (Hear, hear.)

Mr. DAKIN: We ask that the gas may be tested by both photometers, and the results given to the public.

Deputy OBBARD still considered that it would not be well to interfere with Dr. Letheby, and attempt to point out to him how he should conduct his labours.

Deputy HARRISON: I agree with you, and think that that will be the result of the committee's inquiry.

Mr. H. L. TAYLOR said, I intend to put this question—whether the Court of Sewers is to be appealed to on every occasion when this company deems it advisable to give publicity to their proceedings? (Hear, hear.) I consider it a most unusual and unwarrantable course, and one which we ought never to sanction. But, Mr. Chairman, it appears to me that we should not have heard of this memorial to-day but for a circumstance to which I am going to refer. I apprehend that when a report is made to this commission by a highly talented and efficient public officer, appointed by the Corporation, and in whom we have every confidence, that that report, if published, should not have any portion of its contents suppressed because it happens to tell against this company. (Hear.) But such appears to have been the

case with respect to Dr. Letheby's report, presented at the last court. (Hear.) Let me, however, before referring further to the matter, say that I am not now accusing this company of having failed to perform their duty. (Hear, hear.) I am not going to say that they have not supplied gas of at least as good a quality as the act of Parliament requires. I believe they have improved the quality of gas most materially, and are improving it; but I believe also that there is room for much more. I am, however, disposed to give them all the credit which they can reasonably desire, and will not say anything which may be taken as derogatory of their fair claims. What I want to impress upon you is, that when the Corporation of London has appointed an officer to test the quality of the gas supplied by this new company, it is the duty of this court to support him in the discharge of his duties in an independent and efficient manner; and I say that, if you refer the memorial to a committee, you will take the first step towards effectually tying his hands. (Hear.) The complaint in the memorial is that Dr. Letheby has used an improved photometer, and that by that means the quality of the gas does not appear to such advantage. Now, Dr. Letheby in his report says that "this method was suggested to me by Mr. Barlow, who is the Editor of the JOURNAL OF GAS LIGHTING, and it was, I believe, originally contrived by Mr. Lewis Thompson." Now, I know nothing of either of these gentlemen, except that I believe, from what I have heard, that they are very clever scientific men; and I would ask, is it right that we should interfere with Dr. Letheby in his practical experiments, seeing that science has not yet reached its height, but is daily making progression? Another proposition in the memorial is, that you shall do that which you cannot command or control. Surely you have no right as a public body to say to the City Gas Company that they shall have their gas tested by your officer. If you make such a demand on them, they will naturally tell you that it is to their interest to supply the public with a good article, and that the public itself is sufficient judge in the matter. That this is the case with the City Company I presume I may say—I know I could have said it some months ago; but they have not done as I conceive they ought, and I have done with them. But there is another company, the Chartered, who are to have a portion of this proposed, of this ornamental and elegantly fitted up box, which is to be raised on the Corporation waste ground in Cheapside. What do the Chartered Company want with it? Is any one complaining of the quality of their gas? I believe the Chartered Company have all along acted in an independent and honourable manner, and that they are now supplying gas which in quality the Great Central Company cannot surpass. I am astonished that Mr. Dakin should come here and make so monstrous and ridiculous a proposal. It is too absurd to deal with for a moment. I now come to the subject on which I am anxious your attention should be riveted. When at this court last Tuesday, Dr. Letheby made a report which has appeared in the newspapers—with the exception of one small paragraph, which it is desirable you should attentively read and digest, because it is of considerable importance; and I think it is but right that, if the report of a public officer appears in a public print, it should not be a garbled and incorrect one. Dr. Letheby commenced his report by saying:—"I have the honour to submit to you my Second Report on the illuminating power and chemical qualities of the gas supplied by the Great Central Gas Consumers' Company to the City of London." He then proceeds to say—and this is the passage to which I call attention, because it has been altogether omitted from the public newspapers:—"With respect to the chemical quality of the gas, I have to state that it has on several occasions during the last month been contaminated with sulphuretted hydrogen, and that it has in some instances been overcharged with bisulphuret of carbon. Both of these impurities have the very great disadvantage of generating a corrosive product during the combustion of the gas—a product that is not only injurious to the health and comfort of those who breathe it, but is likewise destructive to property, by rotting and tarnishing the more perishable articles of furniture," &c.

Mr. DAKIN: May I ask the honourable gentleman to read on, and I think he will find that the remark applies to gas generally?

Mr. TAYLOR: I intended to do so, because, although, from the introductory paragraph of the report, it is clear that Dr. Letheby had only to give the results of his experiments on the Central Company's gas, he goes beyond his instructions, in the concluding remarks, to make a report on the other companies, who cannot be here to defend themselves. He says:—"In addition to this, I ought to remark that the first-mentioned impurity has the pernicious quality of discolouring the brighter kinds of lead paint. In my examinations of the gas furnished to the City of London by other companies during this period of time, I have also found that the same impurities have been too often present; and I beg leave to suggest that it is highly desirable, both for the sake of health and property, that some means should be taken to ensure a more perfect ventilation, so as to carry off the noxious products generated during its combustion."

Mr. DAKIN: That is the object of the memorial.

Mr. TAYLOR: I cannot tell how Dr. Letheby could test the gas of the other companies with any degree of fairness, considering his want of facilities for so doing, in comparison with his opportunities of testing the new company's gas. However, I shall say no more on this subject, but content myself with urging upon the court the importance of not acceding to the requests contained in the memorial: because, first, you have not the power over the old companies which you are asked to exercise; and, secondly, because I believe that, in attempting to dictate to Dr. Letheby what kind of instruments he shall use, you will be doing much to render his appointment valueless. (Hear hear.) I, therefore, move "the previous question."

Deputy LOTT seconded the amendment. He looked upon the application of the Great Central Company as an unwarranted interference with the time of the court. (Hear.) He had hoped that "the gas question," as far as the Commissioners of Sewers were concerned, was consigned to "the tomb of all the Capulets," and that they (the commissioners) would be allowed to pursue their proper business without interruption. But now they were troubled with another "memorial," which consisted, first, of a philosophical essay on gas; and, secondly, of a panegyric on this company. (Hear, hear.) After what Mr. Taylor had just stated, he thought that any communication from this company ought to have been couched in the language of contrition and penitence, for having supplied the public with such a deleterious article as sulphuretted hydrogen, which they all knew was so prejudicial to life and health. But, instead of that, it was a boastful narrative concerning all they had done, and full of promise about what they were going to do, concerning which there appeared to be "something looming in the distance." (Laughter.) He (Deputy Lott) protested against the Court of Sewers being converted into a monster advertising van for this Great Central Gas *Presumers*—he begged pardon—Consumers' Company. ("Hear, hear," and a laugh.) If Mr. Dakin thought that he was occupying the time of the court rationally and usefully, in continually bringing these matters before it, he was greatly mistaken.

Deputy PEWTRESS defended the memorialists.

A long and desultory conversation ensued on the exact wording of the clause which Mr. Daw, the chief clerk, said was inserted in the deed of contract with the Chartered Company. A messenger was despatched to the solicitor's office for the deed; but returned without it, stating that it was not executed, but had been sent to a law stationer's to be engrossed.

Mr. T. H. HOLT, Mr. BROOKS, Deputy CORNEY, Mr. HARKER, Deputy STEVENS, and others, took part in the discussion; at the close of which,

Deputy HARRISON replied. He reminded the court of the resolution adopted by them on Feb. 24, copies of which had been sent to each of the gas companies, on the subject of testing the gas supplied to the City. The memorial now before them expressed a wish that the spirit of that resolution should be enforced, and there could be no doubt that, if practicable, it was very desirable. All that he asked, therefore, was that the matter should be referred to a sub-committee, who would report their opinion as to whether it was expedient to take any steps in the matter; and the court could then act accordingly. He thought that, when a public officer suggested certain improvements, it was the duty of the court to see how far they could be realised.

Deputy OBBARD said, the suggestion is that of the Central Gas Company, and not of Dr. Letheby.

Deputy HARRISON contended that the memorial went upon the suggestion of Dr. Letheby, that means should be taken to purify the gas.

Mr. TAYLOR: But testing it will not purify it.

Deputy HARRISON was quite aware of that fact, but it would furnish results which might lead to it. Objections had been taken to the Great Central Company coming to the court at all on that occasion. (Hear, hear.) In his (the speaker's) opinion it was just the very place to which they should have come, inasmuch as it was on the floor of that court that their first memorial was presented; and if it had not been for the firm conviction entertained by every member of that court, that a great improvement was required in the quality and price of the article then supplied, the citizens would never have had the benefits they now enjoyed, with a prospect of still further reduction in charge, and improvements in the gas. (Hear.) As to the request that the result of experiments in testing the gas might be given according to the old instrument with which the public were familiar, it seemed to him to be a reasonable one. There was no objection raised by the company to Dr. Letheby testing the gas by the new photometer; all that was wanted was that he should test it by both, and give the results in each case.

The CHAIRMAN expressed a hope that the original motion might be negatived. He did not see any good in reviving the subject. He was for letting "well enough" alone. He burnt the Chartered Company's gas, and it seemed quite as good as any of his neighbours'.

Mr. TAYLOR said, he hoped that those members of the court who were shareholders in the new company would refrain from voting.

The question was then put, when there appeared for the amendment *eight* against *ten*.

Mr. TAYLOR demanded a division, which took place, the result of which was—For the amendmend, *nine*; against it, *ten*.

The CHAIRMAN then put the original motion, upon which

Mr. TAYLOR rose, and proposed that the memorial should again be read *in extenso*, and certain parts of it only referred to a committee.

Deputy LOTT protested against the vote of Deputy Stevens being recorded, he being a shareholder in the Great Central Company.

The CHAIRMAN again put the question, "That the memorial be referred to the General Purposes Committee, &c." whereupon

An Honourable MEMBER proposed "That the court do now adjourn;" which, being seconded, was carried by a large majority.

The original motion was consequently lost.—The court immediately adjourned.

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GUILDHALL, SEPT. 28, 1852.

At this Court—Deputy Peacock in the chair—the Clerk read the following letter from the Chartered Gas Company:—

"*Chartered Gas Company's Office, Horseferry-road, Sept.* 27, 1852.

"Gentlemen,—It having been stated, in a memorial presented to your honourable Board on Tuesday last, that the chairman of this company, on the 4th of December, 1849, 'gave a solemn pledge to submit the gas they supply' in the City of London to examination by Dr. Letheby, I am desired to say that no such pledge was ever given; nor has it been pleaded by the Great Central Company on either of the occasions when they applied to this company to join them in such a proceeding.

"It is scarcely needful to add that these applications were refused; but my directors have authorised me to state that Dr. Letheby has their full permission to examine their gas on the works of the company, at any time, for the satisfaction of your honourable Court.

"C. BURLS, Sec.

"To the Commissioners of Sewers, City of London."

He also stated that since the last court he had examined the draught deed of contract with the Chartered Company, and found that the commissioners had a power reserved thereby to test the company's gas otherwise than upon their works.

GUILDHALL, OCT. 5, 1852.

Deputy PEACOCK in the chair.

After the transaction of some other business,

The Clerk read a letter from the City of London Gas Company, on the subject of testing the gas supplied by them. The letter was as follows:—

"*City of London Gas Light Company,*
*Dorset-street, Salisbury-square, Oct. 5*, 1852.

"Gentlemen,—At your meeting on the 21st ult., Mr. Dakin stated, with reference to the application made by the Central Gas Consumers' Company to your honourable Court for leave to erect a suitable place for testing the gas of the different companies lighting the City, that this company had sent an evasive answer. I am instructed to inform your honourable Court that this company never had any objection to their gas being tested, under a conscious satisfaction that, both as to purity and illuminating power, it would bear a comparison with the gas of any company in the kingdom. I am, therefore, to say that any chemist of eminence may at all convenient times have access to the company's works for the purpose; but this company cannot be a party to any expense in erecting a building, it being, in the opinion of the Committee of Management, wholly unnecessary; and, in order to show that they had no desire to use evasion in replying to the application of the Great Central Company, dated the 21st of August, they direct me to enclose a copy of their letter sent to that company on the 25th of the same month in reply.

"I have the honour to be, gentlemen,
(Signed) "D. BLENHAM, Secretary.

"To the Honourable Court of Sewers for the
City of London, Guildhall."

The following is a copy of the letter referred to:—

"*City of London Gas Light Company,*
*Dorset-street, Salisbury-square, Aug. 25*, 1852.

"Sir,—I am directed by the Committee of Management to acknowledge receipt of your letter of 21st inst., in which you require to be informed if they are willing to concur with your directors in making application to the Corporation of London for leave to erect a temporary building upon the vacant ground at the west end of Cheapside, suitably fitted up for the accommodation of the public officer appointed to test the gas supplied by your company, &c. &c.; and, in reply thereto, I am directed to say, the committee see no necessity for the measure, and are satisfied no practical good can possibly result to justify the expenditure that will be required. They, therefore, decline being a party to the proposed application.

(Signed) "R. J. MILLAR, for the Secretary.

"R. M. Massey, Esq., Sec. Great Central Gas Consumers' Company,
28, Coleman-street."

Mr. Deputy HARRISON then moved that the two letters be referred to the General Purposes Committee to make arrangements.

Mr. H. L. TAYLOR: What for?

Mr. Deputy HARRISON: What for? Why, there is a contract existing between two of the City companies and this court.

Mr. DAW (the clerk): No, sir; with *one* only; not with the other.

Mr. Deputy HARRISON: Is the contract signed?

Mr. DAW: No, sir; not yet.

Mr. Deputy HARRISON: Is there any reason for its not being signed?

Mr. DAW: I do not know that there is. I believe it mainly arises from this fact, that on the present occasion there has been a recurrence to the old division of the City; and it has thus become necessary that there should be a plan drawn up.

Mr. Deputy HARRISON: If the contract had been signed, there would have been an end of the matter, and the committee would have so reported to this court. As it is, I shall the take the liberty of putting the question again next week, whether the contract is signed or not. I am sure I am very glad to find that the two old companies have at length agreed to have their gas tested; and I know that it is equally satisfactory to every member of this court. Under the circumstances, believing that the mere entering of the matter on your minutes will not produce the desired effect, I shall move that the letters be referred to a committee, who will, perhaps, write to Dr. Letheby.

The CHAIRMAN: You can order that yourselves, at once.

Mr. Deputy HARRISON: Well, if you think that will be the most convenient mode, I will. What shall I move?

Mr. DAW: You might signify to Dr. Letheby that the other two companies have no objection to have their gas tested.

Mr. Deputy HARRISON said, all that he wanted was that Dr. Letheby should make a report from all the three companies at the same time. He would like to adopt the suggestion of the chairman, but he was sure that it would be better that the order should originate with the committee. He should, therefore, move that the letters be referred to the General Purposes Committee, to examine and report to the court whether any—and, if any, what—steps it would be right for the court to take thereon.

Mr. Deputy HOLT seconded the proposition.

Mr. Deputy BRIDGE: I do not understand why it should go to a committee at all.

Mr. TAYLOR remarked, nor did he. He did not see what they were aiming at. Just imagine what they were going to do. Here was a public officer appointed by the Corporation to do a certain work, namely, to test the gas of one particular company, for which an equivalent was understood to be paid to him. Now, he asked what had they to do with Dr. Letheby in directing his attention to other duties than those imposed upon him when the office was created? The very moment that the commission stepped in to say to Dr. Letheby, "We call upon you to test the gas of the City and Chartered Companies, as well as the one which you are engaged to do," he wanted to know what was to prevent any member of that court getting up and proposing that their medical officer should be directed to take any gentleman in the commission under his care as a patient? (Laughter.) And what would be the consequence? Why, Mr. Simon would naturally say, "This is no part of the duty for which I was appointed, and for which you engaged to pay me £500 a year; and, if you impose upon me other things than those I undertook originally, I think I shall have a fair and just claim upon you for compensation." (Hear.) Now, that was just the dilemma in which his friend (Mr. Deputy Harrison) was placed. He was always the advocate of something or other; some mischief or other (laughter, and cries of "Order"); and he put forward his plans in such a manner that they hardly knew how to vote against it. Even Deputy Stevens, he saw, was eager to take the place of Deputy Holt (who really had no idea what it was he was seconding), and say something about the matter, just becauseDeputy Harrison proposed it. But his friend Harrison—who was generally a calculating man, and never went too fast except in this matter of gas—he should like to ask him seriously whether he believed he could call upon Dr. Letheby to test the City Company's gas? It was true they might order him to test the gas of all the metropolitan companies, but then, as a commission, they could not pay him, and he would not do it without. (Hear, hear.) And let him ask them what would be gained by it? Why, the very fact of their attempting to put such a thing in practice would tend to send down the shares of the Great Central Company directly. (Laughter.) And why? Because it would necessarily place before the public the better quality of the gas supplied by the other City companies. ("Hear," and a laugh.) It would show at once the difference. (No, no!) He said yes; and was speaking with facts and figures before him.

Mr. Deputy HARRISON: Gas facts and gas figures.

Mr. TAYLOR continued. It would show at once the difference as compared with the other companies, and would convince the public that they had not got what they had fancied they were to have. He said, then, in answer to the resolution before the court, "Do nothing of the sort." The Great Central Gas Company was going on very well. He understood their shares were nearly at par. (A laugh.)

Mr. Deputy HARRISON thought it was rather derogatory to the commission, to make speeches likely to promote speculation in shares.

Mr. TAYLOR continued. He advised them to do what the chairman had recommended at the last court, and not to deal with those matters at all; above all, he advised them not to interfere with a public officer, by ordering him to do that which he was not appointed to do. Let him keep to the Great Central Company; that was all that the public asked, and all that the court had a right to demand; for it was notorious that the City Company were now producing a gas which the Great Central Company could not surpass; though he was not speaking derogatorily of that company. He would tell the court what it was they wanted at a future day. At all events, the question then was, should they ask Dr. Letheby to test the gas of the other companies? And he——

Mr. Deputy HARRISON: No; the question is, that these two communications just read be referred to the General Purposes Committee, to consider what steps, if any, should be taken. It has nothing to do with Dr. Letheby, or with the companies, but with the committee.

Mr. TAYLOR: Well, then, I shall move, as an amendment, that the two letters be entered on our minutes.

Mr. Deputy HARRISON: That is already done. Ours is a court of record, and all our proceedings must necessarily appear on our minutes.

Mr. TAYLOR: But I believe all our proceedings are not so entered. However, I shall content myself by putting my views in another form, and asking the court not to entertain the proposition, because it means something—it means you should put yourselves in communication with Dr. Letheby; and if you do, and should impose extra duties on him, you may depend upon it you will have to pay him. I think it is much better that things should remain as they are.

Mr. TAYLOR: I believe Dr. Letheby is now paid by the Great Central Company.

After a remark from the Deputy STEVENS,

Mr. Deputy LOTT said, he was very anxious that this matter should share the same fate as the memorial of the Great Central Gas Company on a former occasion. That memorial—though pulled through by the illegal votes of two shareholders, who had had the indecency to vote in its favour—fell to the ground through a piece of carelessness. He should wish this matter not to be noticed, because whenever it suited the interest of the Great Central Gas Company (who, by the way, he perceived, had not only become manufacturers of gas, but manufacturers of sheriffs also) to come there and puff off their concerns, however convenient it might be for them to have a *locus standi* in that court, it would prove a sad interference with their duties and the public interest.

The CHAIRMAN viewed the proposition of Deputy Harrison as something like a second edition of what they had the other day; and he thought they would do much better to steer clear of it altogether. (Hear, hear.) However, he would put the question.

Mr. Deputy HARRISON: Oh, if you are going to put the question, I shall claim my right to reply.

Mr. Deputy COOK: You will have no chance. You had better let it go.

Considerable discord prevailed for some minutes, amidst which Deputy Harrison sat down in high dudgeon.

Mr. Deputy CORNEY thought they shoud mete equal justice to all, without partiality. Deputy Harrison thought the parties would pay the expenses of the proposed testing. He very much doubted whether they would. That would introduce a new feature, which would be very perplexing; therefore, he said, let these letters be entered on their minutes, and they could be taken up at any time it might be thought desirable.

Mr. Deputy HARRISON then addressed the meeting in reply, remarking that, in asking for a reference to a committee, he was only exhibiting his desire that equal justice should be shown to all parties. They had entered, he said, into a contract with two out of the three companies which supplied the City; and was it not a well-known fact that they required them to have their gas tested? Where, then, was the

unfairness in asking the City Company to submit to the same terms?

The CHAIRMAN: There's all the difference: the City Company are volunteers.

Mr. Deputy HARRISON, with warmth, said he knew what he was stating; and, when he could not justify the course he took in that commission, he should at once discontinue appearing there at all. Had he to be charged with partiality because he required that all these companies should be placed on an equal footing? He knew that they could not compel the City Company to submit unless they were willing; and his own opinion was, that perhaps at that time it would be expedient to ask them to do so. But that remark would not apply to the Chartered Company, with whom they were large contractors, under certain conditions; he appealed, therefore, to his friend who had just sat down, and asked him whether that was not even-handed justice? He (his friend) was a man of candour, and he knew he would say or suppose that he (Mr. Harrison) was acting with partiality. It was because he wanted justice that he asked for this matter to be referred to a committee, not expecting that the committee would recommend anything to be done in the case of the City Company, but——

Mr. TAYLOR: Then, why refer it?

Mr. Deputy HARRISON continued: Why there were two letters making the same offer from two different parties. He had given his reasons why they should not take steps with one, and why they should with the other. The committee might report that it was, or that it was not, advisable to take steps in either or both cases; and, therefore, he should not say any more upon the subject, but ask that it might be referred to the General Purposes Committee, with whose report he should be perfectly ready and willing to coincide.

The motion was then put, when there appeared for it, 2 (viz., the mover and the seconder); against it, about 20 (being every other member of the court present).

The Court then proceeded with other business.

## SURREY CONSUMERS' GAS LIGHT AND COKE ASSOCIATION.

The half-yearly general meeting of this association was held on Thursday, Oct. 7, at the Bridge-house Hotel, London-bridge.

J. A. DOUGLAS, Esq., Chairman of the Board of Directors, priesdəd.

The SECRETARY read the advertisement convening the meeting.

The CHAIRMAN said, the directors had much pleasure in meeting the shareholders again, and laying before them a report of the proceedings that had taken place since their last meeting. Since that time many important changes had taken place, but, as their history was so fully embodied in the report, it was unnecessary for him to refer to them. If, after the reading of the report, any shareholder required additional information, the directors would be happy to afford as much as was in their power.

Mr. JAMES, the solicitor, then read the report rapidly; but refused, subsequently, to allow the representatives of the press a copy of it, though our reporter had been promised one by the secretary, previous to the commencement of the meeting. The reason assigned by Mr. James was, that the report contained matter which he did not desire to be published. The following is, however, its substance:—

After congratulating the shareholders on the prosperous condition of the association, it stated that the works were now in a complete and efficient state. A gigantic gasholder had been erected, capable of supplying any demands that might be made, and, if the shareholders would exert themselves to get their neighbours to patronise the association, the directors felt confident of being soon able to declare a dividend of 10 per cent. The necessary capital had been supplied, and extensive premises had been taken at the top of High-street, Borough, in which an apartment would be fitted up, to enable Dr. Leeson to test, at any period he chose, the quality of the company's gas, for the satisfaction of the consumers. At a special meeting on the 15th of July last, the directors were authorised to offer shares with a guarantee of 6 per cent. for 10 years. The directors, however, had to report that no consumers had availed themselves of this offer, and the only method, therefore, of increasing their dividends would be by a vigorous canvass for additional consumers. At present no shares remained to be allotted. At the meeting in April last, a dividend of 4 per cent. was declared; and it was resolved that the trading operations of the society should be deemed to have commenced from the 25th of March. The directors saw no reason why the business of the company should not be conducted like that of all other companies, and that the profits should not be anticipated. They had now the pleasure of recommending to the shareholders a dividend at the rate of 6 per cent. on the last quarter. Several of the directors had retired, and it would be proposed to fill up some of the vacancies on the board by electing Mr. William Black and Mr. Stephenson Clarke as directors. Several shares had been forfeited, and the meeting would be asked to confirm that forfeiture according to the deed of settlement. A balance sheet had been prepared and audited, and might be inspected at the office by any of the shareholders. The income of the association might now be estimated at between £7000 and £8000 a year. The present paid-up capital amounted to £33,170. 1s. 7d. The interest payable upon the mortgage and debentures, with the current office expenses, amounted to £601. 3s.; and the proceeds earned, to £1500. The directors have now a very considerable interest in the affairs of the association, having invested large sums in its capital. A committee would be immediately organised to co-operate with the directors and trustees, and an active canvass would be promoted among the tradesmen residing within the sphere of the association's operations. The report concluded with an address which had been lately issued to the gas consumers by Mr. Thwaites, one of the trustees, on the subject of an attempt made by the old companies to secure the custom of the consumers for a certain number of years, by holding out a slight discount as a premium.

Mr. BERESFORD, in moving the adoption of the report, said, he was happy to find that the dividend was not on anticipated, but acquired profits. The first dividend had been declared prospectively; but now the dividend was not only 2 per cent. more, but the money had been actually earned. (Hear, hear.)

Mr. BRICKHILL seconded the motion.

Dr. LIDDLE: I do not understand clearly how you can afford to pay a dividend of 6 per cent. when there is a large mortgage unpaid.

The CHAIRMAN: We have given notice to pay the mortgage off. The interest, however, payable on it in the meanwhile was deducted before calculating our dividend. (Hear, hear.)

The motion was then unanimously agreed to.

The CHAIRMAN then proposed that a dividend at the rate of 6 per cent. per annum for the quarter ending Dec. 29 be immediately paid.

The motion was agreed to.

The CHAIRMAN wished the meeting to understand that a few days would be required to make the necessary preparations for paying the dividend. A circular would be sent round informing them on what day it would be payable. The chairman then proposed, "That the forfeiture of the shares numbered 2161 to 2560 inclusive, and 381 to 400 inclusive, and 2661 to 2665 inclusive, be, and the same is hereby confirmed."

The proposition was agreed to *nem. diss.*

Mr. BRICKHILL then moved, "That Mr. William Black, East India-house, Langley-road, and Mr. Stephenson Clarke, of the Rookery, be appointed to fill the vacancies in the directory.

Mr. NORTON seconded the motion.

A SHAREHOLDER inquired whether it was intended to fill up all the vacancies, and restore the number of directors to the original twelve?

The CHAIRMAN: Certainly not.

Mr. POCOCK felt great pleasure in having an opportunity of bearing his testimony to the great merits of the two gentlemen nominated to fill the vacancies on the board. He was sure he only spoke the sentiments of the directors at large when he said they were men of business and men of honour (hear, hear), and that they would be a great acquisition to the association.

The motion having been agreed to, Mr. BLACK and Mr. CLARKE severally thanked the meeting for the honour conferred on them.

The CHAIRMAN said, he had great pleasure in moving, "That the cordial thanks of the meeting are eminently due to Mr. Croll for the zeal, integrity, and talent displayed by him in the management of the affairs of the engineering department of this association, whereby the success of the undertaking had been secured, and from which the benefits to the shareholders have been derived."

The motion was seconded by Mr. BERESFORD, and carried *nem. con.*

Mr. CROLL: Mr. Chairman and gentlemen, I thank you most sincerely for this vote of thanks. I certainly feel that I have done a great deal to promote the interests of this company. It is now in a very successful condition; but, unless we have the continued aid and co-operation of the shareholders and consumers generally, it will really not be worth my while to continue my services. I hope, however, that you will use your strenuous exertions to increase the consumers of the company. By doing so you will benifit me (and I think I am entitled to some benefit), and also yourselves, as you will have increased profits. The directors and trustees of the company have exerted themselves to an extent I little expected; and, if we all proceed in the way we are going on at present, I think the rental will be doubled by this time twelve months. If that should be so, I shall have to thank you this time next year, instead of you thanking me as you do now. (Cheers.)

The thanks of the meeting were then unanimously accorded to Messrs. Thwaites, Wade, and Bone, the trustees, for their valuable exertions on behalf of the company.

Mr. THWAITES said, it was a matter of great pleasure to him, who had taken so great and lively an interest in the association, that the anticipations formed at their last meeting had been realised. Their present rental, it could be recollected, was for the summer quarter, and, therefore, there should be little doubt that they would be soon able to double that rental. (Hear, hear.) He thought it would be a great disgrace to the number of gentlemen before him, who had a pecuniary interest in the matter, if they did not greatly increase the number of consumers. They had now all their works completed; they had the largest gasholder he ever saw, and were able to supply the district with any quantity of gas. He hoped they would form themselves into district committees for the purpose of canvassing the consumers, and, if they only exerted themselves, they would soon have a dividend of 10 per cent.

Mr. BERESFORD proposed a vote of thanks to the board of directors for their valuable exertions on behalf of the company. During three years they had worked hard, and at great personal expense and inconvenience, to bring the company into its present position, and they had not received one farthing of pay. He believed the directors had no intention of receiving any remuneration until they were able to declare a handsome dividend to the shareholders. (Cheers.)

Mr. BRICKHILL seconded the motion.

The vote of thanks was agreed to.

The CHAIRMAN returned thanks on behalf of himself and his brother directors for the complimentary manner in which the vote of thanks was proposed. He had been connected with the company from its infancy, and was rejoiced to find that it now had reached maturity. The question of remuneration was a delicate subject, and one which he would rather have left entirely in the hands of the shareholders. Whatever they might give hereafter he should be thankful to receive. The directors had certainly been at great expense in attending to the business of the association. He himself had to come from a distance of 50 miles to attend their meetings, and was on that account above £200 or £300 out of pocket; but, having the feelings of an Englishman, he could not bear to be licked, and, therefore, he stuck to the association.

On the motion of Mr. LAUTON, seconded be Dr. LIDDLE, a vote of

thanks was passed to Mr. Under-Sheriff James for his indefatigable exertions to promote the welfare of the association.

Mr. James said, this was one of the most gratifying moments of his life. The circumstance of his being designated Mr. Under-Sheriff James was an additional gratification to him, as that title was derived from his connection with the association. He did not think that a solicitor ought to receive any praise for having discharged his duty; he certainly incurred, and justly so, reprehension if he neglected it. He had always felt a strong interest in the welfare of the association, and it was on that account he had occasionally departed from what might be considered strictly the legitimate sphere of a solicitor's duty, when he thought that by so doing, or by any personal sacrifice of his own, he could promote the interests of the shareholders.

The proceedings terminated with a vote of thanks to the chairman.

## RECEIPTS AND EXPENDITURE OF THE SOUTHPORT IMPROVEMENT COMMISSIONERS ON ACCOUNT OF THE GAS WORKS, FOR THE YEAR ENDING JULY 14, 1852.

### Capital Account.—To August 12, 1852.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To cash as per last accounts | | | £3940 | 6 | 11 | | |
| „ on mortgage at £4 per cent. | | | 1000 | 0 | 0 | | |
| „ for service pipes | | | 16 | 9 | 2 | | |
| „ gas meters | | | 10 | 15 | 0 | | |
| | | | £4967 | 11 | 1 | | |
| Cash on mortgage | | | £4750 | 0 | 0 | | |
| By cash as per last account | | | | | | £4042 | 1 7 |
| „ for gas mains | | | | | | 53 | 8 0 |
| „ laying mains and services | | | | | | 21 | 11 6 |
| „ gas meters | | | | | | 50 | 15 0 |
| „ service pipes | | | | | | 28 | 10 1 |
| „ on account of new tank | | | | | | 140 | 0 0 |
| „ day labour in making new beds | | | | | | 32 | 16 3 |
| „ condensers, purifier, &c. | | | | | | 68 | 17 0 |
| „ carriage of castings | | | | | | 7 | 7 11 |
| „ paving | | | | | | 3 | 8 11 |
| „ carting | | | | | | 0 | 5 0 |
| By balance on hand | | | | | | 518 | 9 10 |
| | | | | | | £4967 | 11 1 |

### Revenue Account.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To cash for gas | | | £797 | 3 | 0 | | |
| „ rent for meters | | | 23 | 8 | 3 | | |
| „ rent for service pipes | | | 8 | 12 | 10 | | |
| „ rosin casks | | | 10 | 4 | 3 | | |
| „ pitch and tar | | | 10 | 1 | 4 | | |
| „ cinders | | | 1 | 10 | 0 | | |
| „ old retorts | | | 3 | 5 | 6 | | |
| „ black varnish | | | 2 | 7 | 0½ | | |
| „ gas burners | | | 0 | 19 | 9 | | |
| „ naphtha | | | 0 | 5 | 3 | | |
| „ rosin oil | | £173 | 17 | 3 | | | |
| less owing and on hand last year | | 69 | 0 | 4 | | | |
| | | | 104 | 16 | 11 | | |
| „ gas owing for | | 117 | 10 | 1 | | | |
| less owing last year | | 82 | 14 | 7 | | | |
| | | | 34 | 15 | 6 | | |
| „ old retorts on hand | | | 6 | 0 | 0 | | |
| „ rosin on hand | | | 3 | 4 | 0 | | |
| „ tar owing for and on hand | | | 17 | 10 | 0 | | |
| To balance due to treasurer | | | 137 | 6 | 5½ | | |
| | | | £1161 | 10 | 1 | | |
| By balance brought from last year | | | | | | £ 70 | 15 5 |
| By cash for rosin | | | | | | 355 | 18 6 |
| „ day wages | | | | | | 103 | 4 8 |
| „ coals and carting | | | | | | 86 | 17 11 |
| „ retorts and iron work | | | | | | 160 | 12 0 |
| „ carriage of rosin, retorts, &c. | | | | | | 80 | 8 5 |
| „ interest on hired money | | | | | | 194 | 3 4 |
| „ red and white lead, whiting, &c. | | | | | | 12 | 14 8 |
| „ fireclay, tiles, and bricks | | | | | | 11 | 19 3 |
| „ charcoal | | | | | | 6 | 11 0 |
| „ lime | | | | | | 9 | 10 10 |
| „ taxes | | | | | | 1 | 6 8 |
| „ cannel and carting | | | | | | 29 | 11 3 |
| „ superintendent's salary | | | | | | 25 | 0 0 |
| „ printing and stationery | | | | | | 3 | 4 2 |
| „ sundries | | | | | | 9 | 12 0 |
| | | | | | | £1161 | 10 1 |

## GAS LIGHTING IN PHILADELPHIA.

The following report contains, among much useful information, some particulars of a decidedly dubious character. Not content with astonishing us "Britishers" with sea serpents and other monstrosities of the material world, Brother Jonathan is determined that even the realms of science shall be invaded to supply the gullible propensities of John Bull. Accordingly, we here find some analyses of coal gas which set all previous things of this kind at defiance. What kind of article that mineral is to which the word coal has been applied in the United States, we dare not venture to say; but, if we may draw any conclusion from these analyses, it must have owed its origin to some vast collection of animal matter, perhaps a shoal or two of sea serpents, for the composition of the gas analysed by Messrs. Booth and Faber is such, that the New York gas contains upwards of 20 per cent. of nitrogen by volume, or about 40 per cent. by weight, and about one-third of these quantities in Philadelphia. We were going to say that this out-Herod's Herod; but mean to say, that this out-Croll's Croll. Twenty per cent. of nitrogen! The great cave of Kentucky is a fool to this gas, and ought immediately to be lighted up to preserve its reputation. True, indeed, Messrs. Stewart and Alexander, in operating upon these same gases, very nearly reverse the proportion of nitrogen; but, then, these gentlemen contrive, from 100 measures of gas to obtain 100·24 measures, which, albeit everything is on the increase in America, looks rather suspicious. Then, again, we have an analysis of the Philadelphia gas by a Dr. Wetherill, which contains no nitrogen at all, or, at least, much less than what the chairman of the Great Central Gas Company calls "an infinitesimal small quantity." Dr. Wetherill's analysis, notwithstanding, looks so much like what we are accustomed to find in this country, that we give at once a decided preference to it, and venture to express an undiluted suspicion that the others are not worth "a brass button."

TO THE TRUSTEES OF THE PHILADELPHIA GAS WORKS.

Gentlemen,—In accordance with usage, the Engineer has the honour to lay before the Board his Sixteenth Annual Report.

In the history of the works for the year 1851 there will not be found such notable events as have marked a few previous years; but it, nevertheless, embraces some facts of sufficient practical value to merit permanent record.

The manufacturing department exhibits a moderate increase in the quantity of gas produced, and has fully maintained its usual character for purity and illuminating value. The gas made in the year is 200,842,000 cubic feet, which, added to the previous production, make the whole quantity yielded by the works, 1,198,701,000 cubic feet. The consumption of the different districts is as follows:—

To the district of Spring-garden, 7,039,800 cubic feet; to Southwark, 5,279,000 cubic feet; to Moyamensing, 1,254,700 cubic feet; and to the City proper, 181,638,825 cubic feet; leaving as the amount used in the works and lost by leakage, 5,629,675 cubic feet, or rather more than 2¼ per cent. of the quantity made. This item has been somewhat increased this year by several incidents of unusual character. On two occasions mains in the street were broken by the caving of cellar vaults extending under the street, and the gas escaped in large quantity for several hours, before notice of the accident reached the works. Another main was similarly fractured by the sinking of a culvert, and a considerable number of service pipes of the largest size was broken at the extensive fires in Chestnut-street, at Sixth and Seventh Streets, and continued to waste gas for several days before they could be reached through the burning ruins.

The current of trade on the State Canal not being favourable for obtaining a large supply of coals from Pittsburg, very little has been derived from that quarter. From this and other causes there has been greater variety in the kinds of coals used in the manufacture than generally occurs, and therefore less uniformity in the constitution of the gas at different periods; but the average of standard has been maintained, and especial care taken to have the quality kept up to the standard through the seasons of greatest use. The varieties of coal used in any considerable quantity are those obtained from Pittsburg, Pa.; Richmond, Va.; English Newcastle, English cannel, and a new article from New Brunswick, in British North America, which is used as a substitute for rosin when the coals are not rich enough in bitumen.

The following is a summary exhibit of the items of the carbonising account:—

| | | |
|---|---|---|
| Coal in store Jan. 1, 1851 | 235,034 | bushels. |
| „ received in „ | 705,812 | „ |
| | 940,846 | „ |
| Coal carbonised | 699,059 | bushels. |
| „ in store Jan. 1, 1852 | 241,787 | „ |
| | 940,846 | „ |
| Coke on hand Jan. 1, 1851 | 85,000 | bushels. |
| „ made in „ | 900,043 | „ |
| | 985,043 | „ |
| Coke used in heating retorts | 537,038 | bushels. |
| „ „ for other purposes | 18,600 | „ |
| Sold during the year | 368,905 | „ |
| Coke on hand Jan. 1, 1852 | 60,500 | „ |
| | 985,043 | „ |

The increased consumption of coals exhibited in the carbonising

account is due, in small part only, to the change in the retort settings to be presently described, a greater part being the result of the deterioration of a large mass of Virginia coal, of which more particular mention will be made further on. In the department of distribution there has been a good degree of activity, both in the laying of street mains and placing service pipes and meters. In accordance with the desire of the Committee on Police, the distribution has been so conducted as to place a pipe for the supply of public lamps in nearly every street, lane, and alley east of Schuylkill Third-street; the few that remain unsupplied will be completed early in the spring, and a large proportion of those situated west of that line will be similarly furnished in the course of this year.

The length of pipes thus laid is 42,141 lineal feet, chiefly of two, three, and four-inch calibre, with a few six-inch and eight-inch, making, with those previously laid, an aggregate length of 542,408 feet, or 102¾ miles.

The increase of services, meters, and burners within the City, is greater than in any previous year, nearly compensating for the withdrawal of the entire number in the district of Spring-garden, so that the number of lights supplied is but 1600 less than those in use a year ago, including those in that populous district.

The new meters and service pipes added are 1211, the whole number in use being 10,449.

The applications registered are 2529; removals and discontinuances, 1339; the increase being 1190, with 21,616 additional lights, besides 124 new lamps in the streets.

The entire number of City customers on the books on the 31st of December was 10,406, using 136,620 lights; the public lamps are—1588 in the streets, 50 in market houses, and 62 in public squares. The districts of Southwark and Moyamensing report 4943 private and 178 public lights, making a total of 143,441 supplied by these works.

The anticipated discontinuance of the supply of gas from our works to the district of Spring-garden, which occurred in the early part of the year upon the completion of the works belonging to that corporation, has had the effect of relieving our works from the constant pressure consequent upon the closeness with which the increase of demand followed upon the rapid enlargement of the means of supply.

The continuance of this condition of things for several years having compelled the postponement from time to time of experimental trials, commenced, and partially executed, for the purpose of testing the relative value of different forms of retorts and plans of setting them, advantage has been taken of the partial cessation of the increase of demand, to prosecute these experiments with considerable vigour upon an extensive working scale.

The field for experiment in this direction is of considerable extent, embracing as it does the materials, forms and mode of manufacture of retorts, the manner of arranging them in the bench, the number to be heated by each fire, and the mode of firing, of charging, and of withdrawing the gas and the coke.

Our experiments in the past year have been confined to a few points, chiefly to the variations in the setting, and the number heated by a single fire. The practice in these respects varies in the different gas-making establishments, according to certain peculiarities of place, or the notions of the proprietors or engineers.

In some works each fire heats only one large retort or oven, in others it is made to work three, or five, or seven, or even eleven, or more. The practice in our works, and most of them in America, has heretofore been to allow three retorts to each fire, and with us, at least, the reasons for it have been well founded.

The high cost of labour and of gas-making coals, and the low price at which it is necessary to sell the residuary coke, in competition with anthracite in this chief mart of the latter, have made it a principal object to obtain the largest yield of gas with the least consumption of coal and labour; without much regard to economy of fuel or of space. This object it is believed can be most effectually attained, in the peculiar setting of three retorts to a fire, such as we have adopted. The experience of the last year or two has given increased importance to economy of space, and our experiments have accordingly taken that direction.

Various plans for increasing the number of retorts with the least diminution of their efficiency have been studied, and those deemed most likely to succeed were practically tried, as soon as relief from the pressure of consumption was obtained.

From these trials, a plan of setting five retorts to a fire was adopted, and put in practice in the western retort benches of both houses, which it will be remembered were so constructed as to admit conveniently of numerous variations in the arrangement of the retorts and flues.

The settings, although not quite as perfect as we may hope to obtain, are giving results approaching very nearly those of the old plan, in yield from the coal, and in economy of labour; and have afforded an important advantage in economy of space, by adding nearly fifty per cent. to the productive capacity of the sections in which they are placed.

When thus much had been accomplished, it only remained to obtain space for the accommodation of the additional washing and purifying apparatus, required to ensure the proper cleansing of the increased quantity of gas manufactured, to make the improvement entirely available for any probable immediate increase of demand. The unexpected termination of the leases given by the City on the property adjacent to that occupied by us for storage, consequent upon the destruction of the City stores by fire, occurred at a favourable juncture for the works, as immediate possession was, in consequence, obtained of the vacated premises, and the damaged buildings were at once repaired and converted to the use of storing coals, whereby one of the old coal stores was made available for the construction of the purifiers and other apparatus required.

The prompt execution of this plan became desirable, as a measure of precaution, in consequence of the many obstacles that were found to lie in the way of obtaining possession of the premises, recently bought in Passyunk, in season for the erection of the new works within the year.

The apparatus designed for the new location was, therefore, set up at the old works, and the prosecution of the general plan at the former place carried on in a more deliberate and economical manner than would have been thought prudent under the previously existing state of things.

The purifiers of the new house have been constructed of larger size than any that have preceded them, with a view to obtain to a fuller extent the advantages that have obviously followed the enlargement of them in size in the sections last built.

The effect in economising labour and materials is made very evident, by comparing the lime accounts of the last three years. Thus, in 1849, 135,000,000 feet of gas required for purification 129,048 bushels of shell lime; in 1850, when the first series of enlarged purifiers was used, 182,000,000 feet were purified with 111,668 bushels; and in the past year, with two such enlarged series in operation, 200,000,000 feet have been purified with only 64,545 bushels. Should there be no very great increase of make of gas this year, it is probable that, by the addition of the last and largest series, the quantity of lime may be reduced below 50,000 bushels.

Some experiments have also been made during the year, with a view to ascertain the value of several schemes for the manufacture and use of gas, that have recently claimed a share of public attention, both in this country and in Europe.

Among them are the so-called hydro-carbon gas, made from steam in combination with various hydro-carbonaceous materials, patented here and in England by Mr. White; the gas from asphaltum or other highly bituminous substances recommended by Dr. Gessner; and the pure hydrogen light with platinum wick, put in operation by M. Gillard, in Paris. These schemes do not bear upon their face the evidence of absurdity or impracticability, such as attaches to the famous project of electric light, at almost no cost, so much agitated a year or two back; but the results of our experiments are not such as to lead to the belief that any advantage would be derived, at present, by adopting them upon an extensive scale. The proper course with respect to them will be to keep them in view, by following up experimentally all their modifications and improvements, of which some that are of practical importance have already been suggested, so as to be prepared to substitute them for the present methods, as soon as such course may be rendered advantageous, either by the perfection of the new plans, or some commercial revolution affecting the value of the materials or products of the different processes of manufacture.

The only other experimental operations of the year of which mention need be made, were those connected with the ignition of the large body of Virginia coals already adverted to.

This ignition, which was undoubtedly of spontaneous origin, being for some time confined to the central and inaccessible parts of the mass, commenced early in the autumn, and spread very much through the interior of the heap before it became evident at the surface by any other symptom than the peculiar benzoic odour that invariably accompanies this species of decomposition. As soon as the existence and locality of the ignition were discovered, attempts were made to check it by the effusion of carbonic-acid gas generated by the combustion of coke in an air-tight furnace, supplied with air by means of a fan-blower. Large volumes of the gas were thrown upon the heap, and were also forced into the interior, through trunks and pipes of large calibre, the effect of which was to extinguish in a few moments every appearance of conflagration and active combustion; but it did not seem to influence materially the tendency to slow decomposition, by which great waste of the useful constituents of the coal is produced, and the fires rekindled on the withdrawal of the mephitic gas.

After repeated trials of this process, made through several weeks, it became evident that the entire destruction of the coals could be prevented only by their removal and speedy use, for which purpose the carbonic acid had to be discontinued, and the coals flooded with water.

The time that has elapsed since possession of the premises in Passyunk was gained, has been occupied in the construction of a substantial wharf, having a front of 400 feet on the river, and returning ends of more than 100 feet, with sufficient depth of water for the accommodation of vessels of the largest class; the excavation of the tank for the large gas-holder; and the completion of surveys for ascertaining the most favourable route for the large connecting main. These extensive preparatory measures could not have been executed hurriedly, without much inconvenience and increased expense. The extension of time that may now be allowed will therefore be attended with advantage in respect to the cost not only of these preliminary operations, but also of the principal structures of iron, the contracts for which have been made at reduced prices, in consequence of the additional time granted for the preparation and completion of the work.

The excavation for the tank has been a work of greater labour than was originally anticipated, in consequence of the interposition of a stratum of moveable sands between the bottom beds of clay, which latter would otherwise have been of sufficient thickness and tenacity to form a reliable foundation.

As this has not proved to be the case, it is deemed necessary to make sure of having the base of the important and costly superstructure secured against any probability of failure, by driving piles to sufficient depth to penetrate the clay and intermediate stratum of moveable sand, and rest on the firm bed of gravel lying about 18 feet below the bottom of the tank. The piling around part of the circle is now completed, so as to allow the framing-in and laying of the timber floor to be commenced, and as soon as the weather becomes suitable for mason-work, that part of the structure will also be vigorously carried on. The gas-holder that is to be placed in this

tank will form the most remarkable feature of this new establishment: in capacity for storage it will be 800,000 feet greater than the large one last constructed; the continued good behaviour of which, in every respect, justifies the decision of the Board to make this one of still larger dimensions. The supports for the guide-frame, twelve in number, will be built in the form of towers in Old English style, nearly one hundred feet in height; and provision is made in the frame of the gas-holder for conveniently and safely adding to the pressure from time to time, as the increase of consumption at the distant points, where it will chiefly occur, shall require additional head for the flow through the large connecting main.

Much difficulty has been experienced from the want of suitable accommodations for boarding the workmen employed at the site of the new works; and, unless some provision be made for this purpose, the inconvenience will be greatly increased in future. Where the residences of working men are so distant from the place of employment, it is less easy to ensure their regular attendance; and when they arrive at their work, the length of the journey has consumed no inconsiderable part of the time and energy needed for the proper performance of their labour. When the works come to be in operation, the residence of a large number of men in their vicinity will be absolutely necessary, as their services will be required during all hours of the day and night; for which reason it ought now to be decided whether the erection of the requisite dwelling-houses is to be effected under the authority of the trustees, or left to individual enterprise; and in either case the work should be commenced with as little delay as possible.

When the manufacture of gas is transferred from the old works to these, there will be wanted about 200 tenements, which should be built in a cheap but substantial manner. Such houses could be let at an annual rent of 60 dollars to 75 dollars each; and, if owned by the trustees, the rents can be secured by reserving them out of the monthly wages of the workmen, and making provision in the leases for the vacation of the premises whenever the occupant ceases to be employed in the works.

The exact cost of constructing such buildings is not yet determined with entire accuracy, but may be estimated near enough to show that the sum of 100,000 dollars, judiciously expended, will provide all that will be needed for a number of years; and the surplus income derived from these will probably suffice for the construction of any additional number as fast as they will be wanted.

A question having been raised by the gas companies in the City of New York as to the comparative value of the gas supplied by their works and ours, and a pamphlet published by them containing a report showing the superiority of the gas made by those companies, it has been deemed proper to have a full investigation of the subject made by competent persons, not in any way connected with the works in either city, and so selected as to ensure freedom from personal or local partialities.

Four gentlemen, eminent in science, and practically well versed in optical and chemical researches, two of whom are Philadelphians, one from Baltimore, and one from New York, kindly consented to undertake the examination required.

The chemical analyses devolved upon Mr. James C. Booth, professor of Applied Chemistry in the University of Pennsylvania, and Mr. William S. Faber, of New York, who has recently returned from Europe, where he has completed a course of study and experiment in the Universities of Marburg and Giessen, and has had the advantage of a course of several years' practical instruction under the immediate direction of Professor Bunsen, the author of the most approved method of gaseous analyses.

The photometric comparisons have been made by Professor J. H. Alexander, of Baltimore, and Professor J. F. Frazer, of the University of Pennsylvania. These investigations were postponed to the latest period that would allow the reports of them to be inserted here, in order to avoid any interference, real or apparent, in the controversy recently pending between one of the gas companies in New York and the municipal authorities of that city, there having been manifested by the former a disposition to attribute to hostile or other improper motives the communication of official statements to the New York authorities by the officers of the Philadelphia Gas Works. The injustice of this imputation will become apparent when it is known that information relative to disputed questions of facts was asked by both parties in this controversy, and was freely given to both, as is done in all cases when it is requested for purposes of public interest.

The questions lately at issue being now, as is understood, set at rest, all reasonable objection to the publication of our results is entirely removed. In making their experiments, the gentlemen by whom they were conducted obtained their gas, for both analysis and photometry, from the public mains at points remote from the gas works; thus making sure of obtaining the same material as was distributed for general use. The analyses were made in December and February, and the photometric observations in January. In New York the photometric comparisons were made with the gas of the Manhattan Company, as it appeared to yield a more brilliant light than that of the old company, and consequently was judged to form the most complete test. The latter gas was used for the analytic comparisons by Messrs. Booth and Faber; but specimens of both kinds, and of gas from the Philadelphia Gas Works, have been taken to Baltimore for analysis there, and, if the results show a material difference in the constituents of the New York gases, the fact will be made known.* The relative values of the gases used in the two cities, as shown by photometric experiments, are believed to be very nearly in accordance with the testimony of disinterested and competent observers, who have sufficient opportunities of testing them by actual use; and the analyses explain quite intelligibly how a gas containing more condensable hydro-carbon, and having a higher specific gravity, may possess lower illuminating power, and consequently less commercial value.

By reference to the reports of these gentlemen, which are appended hereto in full, it will be perceived that the useful effect of the Philadelphia gas, with its own proper burner, is seven per cent. better than that of the New York gas, and the average of all the trials with both forms of burners is about four per cent. in favour of Philadelphia gas; from which it appears that at the actual selling prices of 1 dollar 90 cents per 1000 feet in Philadelphia, and 3 dollars per 1000 in New York, our neighbours in that city pay 64 per cent. more for their light than is paid here.

An examination of the analysis explains the difference in value of the two gases: for, while the Philadelphia gas contains one-fourth less condensable hydro-carbon, the presence of which in excess gives rise to the annoying profusion of smoke and soot that deposits when the lights are not skilfully managed, it nevertheless possesses a larger total amount of useful hydro-carbons united in proportions that give rise to the most ready and least fuliginous combustion; on the other hand, the New York gas contains much larger proportions of carbonic oxide, carbonic acid, and nitrogen, the first and last of which are of no value for illumination, and the other positively deleterious. These useless ingredients add to both the volume and specific gravity of the gas; and, while they form only 12¼ per cent. of the volume of the Philadelphia gas, they constitute more than 34 per cent. of that of New York. The value to the buyer is but one of the elements on which the proper selling price should be based; the other principal element being the proper cost of production; but, as this topic is not discussed in the pamphlet issued by the New York companies, it is not deemed necessary to enter upon it on the present occasion. The details upon which the opinions expressed above are founded, will be seen in the annexed reports of the experiments; and the usual statistical tables, showing the annual growth of each department of the works, are also appended.

Respectfully,

JOHN C. CRESSON, Engineer.

*Philadelphia Gas Works, Jan.* 23, 1852.

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REPORT ON ANALYSIS OF GAS.

*Philadelphia, Jan.* 6, 1852.

JOHN C. CRESSON, Esq., Engineer, &c.

Sir,—We have the honour herewith to communicate the results of observations recently made by us at your request upon the comparative illuminating powers of gas used in New York and Philadelphia respectively.

[For table showing the observations actually made, see next page.]

The observations in New York were made during daytime, but in a chamber utterly darkened: the tinting of whose walls and furniture was more favourable for experiment than was the case in Philadelphia.

The pressure-gauge was filled with Croton water in New York, and Schuylkill water in Philadelphia. As the absolute quantities consumed were otherwise directly ascertained, the record of the circumstance is of no further interest than as showing that the gases burned were of equal elasticities respectively. The meter used was a small one, each of whose divisions corresponded with $\frac{1}{10}$ of a cubic foot; the ratio of these divisions to minutes of time is of course equivalent to that of cubic feet per hour, as given in the 8th and 9th columns. The readings of this in Philadelphia were, in fact, made from minute to minute, at the beginning and end of each experiment, through the respective intervals. The grouping used in the table for convenience gives a mean result, very slightly differing (in the third decimal place) in excess from the average of the individual intervals.

The tests used were tissue papers of different colours, as follows:—Nos. 1 and 2 were different shades of red, or properly pink, No. 2 being the lighter; No. 3 was a light yellow or citron; No. 4, a sea green. The other was a white laid paper, of uniform texture and thickness.

The gas-burners are indicated in the table. In New York, the pressure with the argand was all that could be obtained; the stopcock being entirely open, and the burner doing its best. In Philadelphia, where a higher pressure was attainable, the stopcock had to be more than one-third closed, and the burner was not giving its best flame. Therefore the fifth experiment was made under circumstances differing as to pressure, but affording, as we consider, the properest practical comparison.

The candle was one of Judd's patent sperm sixes. There was no opportunity for weighing the actual consumption of it in New York, and therefore it was not weighed in Philadelphia. The results, then, are still affected by a possible want of uniformity in this respect. Otherwise all pains were taken to keep its flame at a maximum state of illumination, with a wick of constant length, and with the same side turned always to the photometer.

This was of Ritchie's arrangement, where two glass mirrors, oppositely inclined at 45° to the horizen, reflect the light received at either end of the oblong chamber in which they lie, vertically upwards to a common orifice. We were reliably assured that the mirrors had been reversed, and no appreciable difference recognised between them. We did not, therefore, repeat the experiment by turning it end for end, but used it always in the same position, with the candle, as shown, at a constant distance from the apex of the mirrors; from which also the distance of the gas light was measured.

* The report of the analysis made in Baltimore by Messrs. Stewart and Alexander has since been received, and shows the gas of the Manhattan Company to be much better than that of the old or New York Company, the chemical properties agreeing very closely with those exhibited in the photometric experiments, by both of which the Manhattan gas and the Philadelphia gas appear to be almost identical in value.

| Date. | Denomination. | Pressure at Burner. | Time. | Interval. | Meter Reading. | Quantity. | Cubic feet per hour. | Mean Consumption per hour. | Tests. | Photometric Distance. Gas Burner. | Photometric Distance. Candle. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1852. | | in. | h. m. | m. | d. | | | c. f. | | | in. |
| Jan. 3 | Manhattan Gas.. | 0·4 | 2.12 | .. | 20· | | | | No. 1 | 37·125 | 10 |
| | | | .19 | 7 | 44· | 24· | 3·429 | | 2 | 37·5625 | ,, |
| | | | .32 | 13 | 90·5 | 46·5 | 3·577 | 3·502 | 3 | 37·375 | ,, |
| Exp. I. | Fish-tail burner... | .. | .37 | 5 | 108· | 17·5 | 3·500 | | 4 | 37·5625 | ,, |
| | | | | | | | | | White.. | 37·9375 | ,, |
| | | | | | | | | | ,, F. | 38· | ,, |
| | | | | | | | | | Mean .. | 37·59·375 | ,, |
| Jan. 3 | Manhattan Gas.. | 0·2—0·25 | 2.43 | .. | 8·5 | | | | No. 1 | 45·125 | ,, |
| | Argand burner.... | .. | .49 | 6 | 40· | 31·5 | 5·250 | | 2 | 45· | ,, |
| Exp. II. | With conical deflector and swelled glass chimney..... 7·5 inches high. | .. | .55 | 6 | 71· | 31· | 5·167 | 5·208 | 3 | 44·875 | ,, |
| | | | | | | | | | 4 | 44·875 | ,, |
| | | | | | | | | | White.. | 44·625 | ,, |
| | | | | | | | | | Mean .. | 44·9 | ,, |
| Jan. 5 | | 0·4 | 11.18 | .. | 25·9 | | | | No. 1 | 46·75 | ,, |
| | Philadelphia Gas | | .30 | 12 | 86·4 | 60·5 | 5·04½ | | 2 | 47· | ,, |
| Exp. III. | Fish-tail burner .. | .. | 11.54 | .. | 23· | .. | .. | 5·0375 | 3 | 46·625 | ,, |
| | | | 12.00 | 6 | 53·2 | 30·2 | 5·03⅔ | | 4 | 45·9375 | ,, |
| | | | | | | | | | White.. | 46·625 | ,, |
| | | | | | | | | | Mean .. | 46·5875 | ,, |
| Jan. 6 | Philadelphia Gas | 0·225 | 0.11 | .. | 18·5 | | | | No. 1 | 43· | ,, |
| | | | 0.16 | 5 | 44·5 | 26· | 5·20 | | 2 | 43·75 | ,, |
| Exp. IV. | Argand burner.... | .. | .38 | .. | 8· | .. | .. | 5·160 | 3 | 42·875 | ,, |
| | As before ..... | .. | .43 | 5 | 33·6 | 25·6 | 5·12 | | 4 | 42·75 | ,, |
| | | | | | | | | | White.. | 42·875 | ,, |
| | | | | | | | | | Mean .. | 43·05 | ,, |
| Jan. 6 | Philadelphia Gas | 0·275 | 0.45 | .. | 15·5 | | | | White.. | F. 47·625 | ,, |
| | Argand burner.... | .. | 0.51 | 6 | 52· | 36·5 | .. | 6·083 | ,, | A. 47·5 | ,, |
| Exp. V. | Normal illumination. | | | | | | | | Mean .. | 47·5625 | ,, |

The numerical deductions from the observations are exhibited in the following table:—

| Actual Distances. Candles. | Actual Distances. Gas Burner. | Ratio of Squares. Candle. | Number of Candles equal to 1 gas light. | Consumption of Gas per hour. | Illuminative Power. | Ratio of Illumination. | Kinds of Gas and Burner. |
|---|---|---|---|---|---|---|---|
| inches. | inches. | | | cubic feet. | | | |
| 10 | 37·59375 | 1 : | 14·133 ÷ | 3·502 = | 4·036 | 0·93 | Experiment I., New York fish-tail. |
| 10 | 44·9 | 1 : | 20·160 ÷ | 5 208 = | 3·871 | 0·89 | ,, II., New York argand. |
| 10 | 46·5875 | 1 : | 21·704 ÷ | 5·0375 = | 4·528 | 1· | ,, III., Philadelphia fish-tail. |
| 10 | 43·05 | 1 : | 18·533 ÷ | 5·160 = | 3·592 | 0·83 | ,, IV., Philadelphia argand. |
| 10 | 47·5625 | 1 : | 22·622 ÷ | 6·083 = | 3·719 | 0·86 | ,, V., Philadelphia do., No. 2. |

These ratios of illuminative power may be combined in various ways for a conclusive result, according to whichever burner and state of pressure may be considered as the fairest practical index. If the fish-tail burner and the greatest density be so regarded as we are inclined to do, then the Philadelphia gas is at least 7 per cent. more illuminative, with equal quantities in equal times, than the Manhattan.

The following statements show the other results; thus:—

| | Philad. | Manhattan, N.Y. |
|---|---|---|
| Fish-tail burner ..... | 1· | : 0·93 |
| Argand, equal pressure..... | 0·83 | : 0·89 |
| | 0·83 | : 0·8277 :: 1 : ·9972 |

or New York Manhattan gas ¼ per cent. worse than Philadelphia.

Again:—

| | Philad. | Manhattan, N.Y. |
|---|---|---|
| Fish-tail burner ..... | 1· | : 0·93 |
| Argand burner, best flame .. | 0·86 | : 0·89 |
| | 1· | : 0·9625 |

*i. e.*, New York Manhattan gas 3¾ per cent. worse than Philadelphia.

Finally:—

| | Philad. | Manhattan, N.Y. |
|---|---|---|
| Fish-tail burner ..... | 1· | : 0·93 |
| Argand, average ..... | 0·845 | : 0·89 |
| | 1· | : 0·9795 |

*i. e.*, New York Manhattan gas 2 per cent. worse than Philadelphia.

The diversity of these results serves to show, what was otherwise to have been expected, that any and every illuminating gas, according to its chemical constitution and the pressure under which it is stored and delivered, requires a burner of a particular form and size to develop its fullest efficiency; in other words, that every gas wants its own burner.

In the present instance, the fish-tail burner used seems to leave very little to be desired for the Philadelphia gas; and the numerical results would undoubtedly have been different had the New York gas been tried with its best-adapted burner; but this would have required a series of observations and trials which we were not authorised in making; and, besides, the fish-tail and the argand seem to us to embrace the two limiting modes of burning between which the maximum effect must be found.

In this aspect the last result, which covers to all probable variations of management or mismanagement in the ordinary use of gas, appears to us worthy of undoubted acceptation.

We are, sir, very respectfully,

J. H. Alexander. John F. Frazer.

## Report on the Analytical Investigation of the Illuminating Gases of New York and Philadelphia.

The New York gas was taken from the office of Messrs. Spies, Christ, and Co., corner of Broad and Beaver Streets, in glass tubes drawn out to fine points, in which it was sealed by the blowpipe flame, after a sufficient amount of the gas had passed through to ensure the total expulsion of atmospheric air. The Philadelphia gas was taken at the laboratory in College-avenue, Tenth-street, between Market and Chestnut Streets. The results prove them both to have been free of atmospheric air.

The course of analysis pursued was that of Professor Bunsen, a description of which will be found in the "Journal of the Franklin Institute," for 1849. The results are given in volumes as the determinations were made, the reductions being in every case to the usual standards of England and the United States, viz., to 32° Fahr., and 30″ barom. The thermometer was an accurate one, of German manufacture. The barometer was a French aneroid, which had been previously compared with an ordinary mercurial barometer, and which would indicate the ·01 inch.

The following are the results of the analysis of 100 volumes of the two gases:—

| | | New York Gas. | Philadelphia Gas. |
|---|---|---|---|
| Olefiant gas | $C^2H^2$ ..... | 8·32 | 6·38 |
| Marsh gas | $CH^2$ ..... | 32·92 | 54·84 |
| Hydrogen | H ..... | 24·04 | 26·27 |
| Carbonic oxide | CO ..... | 11·60 | 4·42 |
| Carbonic acid | $CO^2$ ..... | 2·10 | 0·97 |
| Oxygen | O..... | 0·19 | 0·04 |
| Nitrogen | N..... | 20·83 | 7·08 |
| | | 100·00 | 100·00 |

James C. Booth, Prof. App. Chem. Univ. Pennsylvania.

William L. Faber, Practical Chemist and Metallurgist.

*Philadelphia, Dec.* 30, 1851.

ANALYSIS OF ILLUMINATING GAS, FURNISHED FOR CONSUMPTION IN NEW YORK AND IN PHILADELPHIA, AND COMPARISON OF ITS PROBABLE CHEMICAL CONSTITUTION IN THE TWO CITIES RESPECTIVELY.

The sample of New York gas was collected at the New York Hotel in the forenoon of Jan. 2, 1852, by J. H. Alexander, and understood to be furnished there by the Manhattan Gas Company; the sample of Philadelphia gas is believed to have been gathered in the forenoon of Jan. 1, 1852, by Professor Booth, from a burner in his laboratory.

Direct measurements, corrected for a uniform barometer-stand of 30 in. and constant temperature of 32° F., gave the following results:

| | | Manhattan Gas. | Philadelphia Gas. |
|---|---|---|---|
| Carbonic acid | $CO^2$ ..... | 2·22 | ·87 |
| Hydro-carbons | $CH^?$ ..... | 9·28 | 9·96 |
| Olefiant gas | $C^2H^2$ ..... | 3·44 | 2·04 |
| Lt. carbur'd hydrogen | $CH^2$ } .... | 70·89 | 32·27 |
| Hydrogen | H } | | 40·49 |
| Nitrogen | N ..... | 12·31 | 14·61 |
| | | 98·14 | 100·24 |

Assuming a constitution in accordance with the formulæ given above, these results may be reduced for comparison as follows:—

| | Manhattan. Volume. | Weight. | Philadelphia. Volume. | Weight. |
|---|---|---|---|---|
| $CO^2$ .. | 2·27 = | 7·77 | ·87 = | 3·06 |
| CH .. | 9·45 = | 10·44 | 9·93 = | 11·29 |
| $C^2H^2$ | 3·50 = | 7·74 | 2·04 = | 4·64 |
| $CH^2$ | 32·04 = | 40·35 | 32·20 = | 41·72 |
| H .. | 40·20 = | 6·23 | 40·39 = | 6·45 |
| N .. | 12·54 = | 27·47 | 14·57 = | 32·84 |
| | 100· | 100· | 100· | 100· |
| Corresponding spec. grav. | | 0·444 | | 0·432 |

The quantities inscribed as hydro-carbons were among the volumes absorbed by chlorine water in the dark; and no doubt appear slightly in excess from the vapour of naphtha accompanying the potassium used as one of the reagents. The sample on hand was not sufficient to allow a repetition of the experiment by which this source of error might have been eliminated; but, as both samples were purposely treated alike, it is fair to consider its influence as proportionate in the two cases, and as therefore not affecting the comparison here.

The smallness of the sample of Manhattan gas, also, gave no opportunity for separating the proportions of light carburetted hydrogen and pure hydrogen in that instance, as was done in the case of the Philadelphia gas. In the comparison, therefore, they are distinguished in the same ratio for the former as was found experimentally for the latter.

And the same obstacle prevented the experimental determination of specific gravities. The values given for this term, above, are therefore only theoretical, and have been presented merely in illustration; though they may be presumed not to deviate materially from the fact.

Finally, if abstraction be made of the nitrogen and the carbonic acid, the former of which certainly and the latter probably contribute nothing to the illuminating power in combustion, the economical efficiency of the two samples may be compared in the ratio of their aggregated combustible elements, as under:—

| | Carbon. | Hydrogen. |
|---|---|---|
| Manhattan gas .. | 0·45845 = 1· | .... 0·18915 = 1· |
| Philadelphia gas.. | 0·44944 = 0·98 | .... 0·19156 = 1·01 |

This last comparison shows the Manhattan gas to be richer in carbon by 2 per cent., and poorer in hydrogen by 1 per cent., under equal weights, than the Philadelphia gas; and implies, besides, that, under low pressures at the burner, the Manhattan gas should have the advantage in illuminating power, while under high pressures this advantage would be exhibited by the Philadelphia gas; and, finally, that within this range there is a point of pressure at which the illuminating power of the two gases, with the same burner, would be found exactly the same.

DAVID STEWART. J. H. ALEXANDER.

*Baltimore, Feb.* 16, 1852.

NOTE.—A later analysis of the Philadelphia gas, made by Dr. Charles M. Wetherill, in the month of February, gives the following result:—

| | |
|---|---|
| Olefiant gas and Hydro-carbon vapours } ..... | 8·936 |
| Oxygen ..... | 0·136 |
| Hydrogen ..... | 44·168 |
| Light carburetted hydrogen .... | 41·620 |
| Carbonic oxide..... | 5·081 |
| Carbonic acid ..... | 0·000 |
| Nitrogen ..... | 0·059 |
| | 100·000* |

* This analysis would indicate a gas of such quality, that a properly constructed burner, consuming 5 feet per hour, will give a light equal to about 18 sperm candles, burning 120 grains per hour.—ED. J. G. L.

ASSETS AND LIABITIES ON JAN. 1, 1852.

| *Assets.* | Dols. | *Liabilities.* | Dols. |
|---|---|---|---|
| Works | 569,169 95 | Loans 1, 2, 3, 4, 5, 6, 7, and 8 | 1,055,400 00 |
| Street mains | 422,151 38 | Dividends unpaid | 405 00 |
| Service-pipes and meters | 211,921 01 | Interest on gas loans, including that due Jan. 1, 1852 | 23,364 20 |
| Public lamps | 11,814 02 | For coals, repairs, and materials used in the manufacture of gas | 60,803 35 |
| Cash | 37,053 67 | Sinking fund | 416,166 12 |
| Suspended debt | 2,529 22 | Contingent fund | 276,781 21 |
| Stocks belonging to the sinking fund at cost | 415,925 50 | Profit and loss (amount of suspended debt) | 2,529 22 |
| Coal on hand, 241,787 bushels, at 23 cents | 55,611 01 | Temporary loan | 15,000 00 |
| Coke on hand, 60,500 bushels, at 4 cents | 2,420 00 | | |
| Due for gas sold and delivered, and on hand | 76,252 80 | | |
| Due for coke, tar, &c. | 5,500 00 | | |
| Interest on City loans, due Jan. 1, 1852 | 2,073 50 | | |
| Wharf lot on the Schuylkill | 6,000 00 | | |
| Site for the new works | 31,027 04 | | |
| | 1,849,449 10 | | 8,849,449 10 |

PROFIT AND LOSS ACCOUNT FOR THE YEAR 1851.

| *Jan.* 1, 1851. *Dr.* | Dols. | *Jan.* 1, 1851. *Cr.* | Dols. |
|---|---|---|---|
| Amount due for coals, materials, and repairs, chargeable to the manufacture of gas | 30,111 16 | Amount of stock on hand and debts due to the works at this time | 144,622 89 |
| *Dec.* 31, 1852. | | *Dec.* 31, 1851. | |
| Sales of gas in 1851 | 369,221 82 | Payments during the year, and other charges against the manufacture of gas:— | |
| „ of coke „ | 19,694 73 | Coal, and other materials, and wages | 167,929 50 |
| „ of tar „ | 5,896 23 | Repairs | 27,364 96 |
| „ of lime „ | 1,762 01 | Incidental charges | 47,009 09 |
| „ of stone „ | 529 61 | Salaries | 7,882 21 |
| „ of old materials and sundries | 1,625 63 | Premium on sales of loans, appropriated to the sinking fund, as directed by ordinance | 53 67 |
| Laying mains and making connections at Girard College | 1,349 10 | Appropriated to the sinking fund, as directed by ordinance | 29,758 00 |
| Rent of office and cellar | 140 00 | Interest on loans for the year 1851 | 59,512 00 |
| Premium on sales of loans | 53 67 | Amount due Jan. 1, 1851, for coals, repairs, and materials used in the manufacture of gas | 60,803 35 |
| Interest to the time when the loans were sold | 1,813 83 | Suspended debt, Jan. 1, 1851 | 1,896 34 |
| Stock on hand, Jan. 1, 1852:— | | Interest on temporary loan | 150 00 |
| Coal | 55,611 01 | | 546,882 01 |
| Coke | 2,420 00 | Balance | 27,628 81 |
| Gas delivered | 76,252 80 | | 574,510 82 |
| Due for coke, lime, tar, &c. | 5,500 00 | | |
| Suspended debt | 2,529 22 | The above balance of | 27,628 81 |
| | | Less the sum of | 632 88 |
| | 574,510 82 | The increase of the suspended debt, during the year, gives the net increase of the contingent fund for 1851 | 26,995 93 |

1851.—MANUFACTURING ACCOUNTS.

| *Gas.* | Dols. |
|---|---|
| Wages of stokers, &c., employed in retort houses and purifying houses, manufacturing gas, and wheeling coals | 41,573 18 |
| Coals | 88,363 87 |
| Freight on coals | 27,050 63 |
| Measuring and carting coals | 7,087 74 |
| Duties | 2,153 20 |
| Lime, and oyster shells | 1,597 25 |
| Insurance | 103 63 |
| Total | 167,929 50 |

| *Repairs.* | Dols. |
|---|---|
| Wages of carpenters, blacksmiths, fitters, and labourers, engaged in repairs of works, street mains, and services | 8,478 34 |
| Castings | 9,148 14 |
| Meters | 3,010 10 |
| Fire bricks and tiles | 2,253 13 |
| Iron | 991 01 |
| Hardware and nails | 435 87 |
| White lead, paints, and glass | 309 46 |
| Wharf | 415 56 |
| Wire and tin work | 269 45 |
| Repairing wire and screws | 20 58 |
| Stopcocks | 177 20 |
| Plastering | 301 21 |
| Tar pumps | 120 00 |
| Oil | 314 79 |
| Iron turnings | 110 36 |
| Drilling machine | 122 50 |
| Bricks | 84 00 |
| Chandlery | 78 36 |
| Cart | 76 00 |
| Repairing and caulking scow | 74 51 |
| Lumber | 58 29 |
| Carting | 40 49 |
| Mica, sand, and cement | 44 00 |
| Hammer, and file handles | 37 90 |
| Trunk boards | 39 90 |
| Brass castings | 33 85 |
| Sheet-iron work | 27 40 |
| Repairing bellows | 20 00 |
| Taps and dies | 46 50 |
| Paint brushes | 21 40 |
| Swedge block | 20 19 |

| | | |
|---|---|---|
| Pump, bucket, and leather | 20 | 42 |
| Blocks | 18 | 60 |
| Paving | 11 | 75 |
| Tallow | 7 | 30 |
| Lime | 18 | 96 |
| Repairing transit | 5 | 50 |
| Repairing hose | 2 | 60 |
| Total | 27,264 | 96 |
| *Incidentals.* | | |
| Wages of men employed in the inspection of fittings and meters, taking statements for bills, in care of public lamps, storing coals and coke at works, measuring coke and lime, and all other incidental matters not appertaining to other specified heads | 28,386 | 36 |
| Rent | 7,595 | 00 |
| Taxes and water | 3,231 | 00 |
| Druggets (to cover meters) | 1,429 | 57 |
| Alcohol | 916 | 13 |
| Printing and stationery | 1,194 | 24 |
| Barrels of tar | 505 | 24 |
| Subscriptions and advertising in newspapers | 355 | 92 |
| Horse keep | 288 | 48 |
| Carting | 264 | 04 |
| Gas fittings | 273 | 36 |
| Oil and paints | 210 | 04 |
| Air pump | 150 | 00 |
| Brushes, brooms, and buckets | 136 | 92 |
| Boats | 51 | 00 |
| Fire-proof safe | 50 | 00 |
| Hardware | 50 | 00 |
| Tubing | 50 | 00 |
| Reports of lighting | 48 | 00 |
| Appropriation to fire companies | 30 | 00 |
| Lead pipe | 28 | 38 |
| Stoves | 26 | 50 |
| Pump | 23 | 20 |
| Feed bags | 16 | 00 |
| Soap | 15 | 00 |
| Muslin | 15 | 02 |
| Clay cylinders | 15 | 30 |
| Oiling hose | 13 | 58 |
| Coal tubs | 12 | 00 |
| Lock | 11 | 40 |
| Canvas | 10 | 00 |
| Clock | 8 | 00 |
| Burner covers | 6 | 00 |
| Patent binders | 5 | 37 |
| Miscellaneous expenses of office, postage, &c. | 1,588 | 04 |
| Total | 47,069 | 09 |

## Table A.
### City Registry.

| Date. 1851. | Applications. | Removals, Discontinuances. | Private Lights. Added. | Private Lights. Total. | Public Lights. Streets. | Public Lights. Market Houses. | Public Lights. Squares. |
|---|---|---|---|---|---|---|---|
| To Jan. 1 | 17,941 | 8,725 | .. | 115,004 | 1,464 | 50 | 62 |
| January | 185 | 107 | 1,512 | 116,516 | 17 | — | — |
| February | 154 | 89 | 1,333 | 117,849 | 1 | — | — |
| March | 204 | 113 | 1,461 | 119,310 | 2 | — | — |
| April | 211 | 130 | 1,692 | 121,002 | 8 | — | — |
| May | 201 | 116 | 1,583 | 122,585 | 6 | — | — |
| June | 162 | 92 | 1,460 | 124,045 | 3 | — | — |
| July | 137 | 75 | 1,014 | 125,059 | 3 | — | — |
| August | 207 | 112 | 1,686 | 126,745 | 14 | — | — |
| September | 305 | 148 | 2,375 | 129,120 | 4 | — | — |
| October | 330 | 142 | 3,164 | 132,284 | 6 | — | — |
| November | 240 | 110 | 2,348 | 134,632 | 9 | — | — |
| December | 193 | 105 | 1,988 | 136,620 | 51 | — | — |
| Total | 2,529 | 1,339 | 21,616 | .. | 124 | — | — |
| Brought down | 17,941 | 8,725 | .. | .. | 1,464 | 50 | 62 |
| Grand total | 20,470 | 10,664 | .. | 136,620 | 1,588 | 50 | 62 |

### Registry of the Districts.

| | Private Lights. | Public Lights. | Market Houses. |
|---|---|---|---|
| Southwark | 3,993 | 114 | 13 |
| Moyamensing | 950 | 51 | |
| Totals | 4,943 | 165 | 13 |

## Table B.

| Date. 1851. | Services Laid. | Meters Set. 3 light. | 5 light. | 10 light. | 20 light. | 30 light. | 45 light. | 60 light. | 100 light. | Public Lamps. On Posts. | On Wall. | Market Houses. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| To Jan. 1 | 9238 | 1693 | 2737 | 1441 | 253 | 59 | 30 | 9 | 16 | 1260 | 204 | 50 |
| January | 78 | 41 | 23 | 7 | 6 | 1 | .. | .. | .. | 16 | 1 | — |
| February | 69 | 37 | 20 | 8 | 4 | .. | .. | .. | .. | .. | 1 | — |
| March | 93 | 42 | 30 | 15 | 5 | 1 | .. | .. | .. | 2 | .. | — |
| April | 86 | 37 | 28 | 13 | 6 | 2 | .. | .. | .. | 7 | .. | — |
| May | 79 | 31 | 33 | 10 | 4 | 1 | .. | .. | .. | 6 | .. | — |
| June | 76 | 24 | 33 | 14 | 1 | 1 | 1 | 1 | 1 | 3 | .. | — |
| July | 64 | 28 | 22 | 9 | 3 | 1 | .. | 1 | .. | 3 | .. | — |
| August | 96 | 39 | 35 | 15 | 5 | 2 | .. | .. | .. | 14 | .. | — |
| September | 164 | 69 | 56 | 22 | 14 | 2 | 1 | .. | .. | 4 | .. | — |
| October | 188 | 70 | 46 | 51 | 16 | 3 | 2 | .. | .. | 5 | 1 | — |
| November | 128 | 66 | 29 | 27 | 6 | .. | .. | .. | .. | 4 | 5 | — |
| December | 90 | 50 | 18 | 13 | 6 | 1 | .. | .. | 2 | 49 | 2 | — |
| Total | 1211 | 534 | 373 | 204 | 76 | 15 | 4 | 2 | 3 | 113 | 11 | — |
| Bt. down | 9238 | 4693 | 2737 | 1441 | 253 | 59 | 30 | 9 | 16 | 1260 | 204 | 50 |
| Gd. Total | 10449 | 5227 | 3110 | 1645 | 329 | 74 | 34 | 11 | 19 | 1373 | 215 | 50 |

## Table C.

| Date. 1851. | Main Pipes laid in Streets—Lineal Feet. 1½ in. | 2 inch. | 3 inch. | 4 inch. | 6 inch. | 8 inch. | 10 inch. | 12 inch. | 16 inch. | 20 in. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| To Jan. 1 | 426 | 76,272 | 197,221 | 124,351 | 38,083 | 25,182 | 14,324 | 13,500 | 10,413 | 495 | 500,267 |
| January | .. | 423 | .. | .. | .. | .. | .. | .. | .. | .. | 423 |
| February | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | — |
| March | .. | .. | 1,278 | .. | .. | .. | .. | .. | .. | .. | 1,278 |
| April | .. | 108 | .. | .. | .. | .. | .. | .. | .. | .. | 108 |
| May | .. | .. | 792 | 1,881 | .. | .. | .. | .. | .. | .. | 2,673 |
| June | .. | .. | 1,422 | .. | 720 | .. | .. | .. | .. | .. | 2,142 |
| July | .. | 1,950 | 3,609 | 1,620 | .. | .. | .. | .. | .. | .. | 7,179 |
| August | .. | 2,220 | 4,176 | 1,656 | .. | 324 | .. | .. | .. | .. | 8,376 |
| Septembr | .. | 408 | 3,978 | 3,519 | .. | .. | .. | .. | .. | .. | 7,905 |
| October | .. | 5,418 | 1,863 | 1,278 | .. | .. | .. | .. | .. | .. | 8,589 |
| Novembr | .. | 1,344 | 522 | 648 | .. | .. | .. | .. | .. | .. | 2,514 |
| Decembr | .. | .. | 801 | 153 | .. | .. | .. | .. | .. | .. | 954 |
| Total | .. | 11,901 | 18,441 | 10,755 | 720 | 324 | .. | .. | .. | .. | 32,141 |
| Bt. down | 426 | 76,272 | 197,221 | 124,351 | 31,083 | 25,182 | 14,324 | 13,500 | 10,413 | 495 | 500,267 |
| Gd. total | 426 | 88,173 | 215,622 | 135,106 | 38,803 | 25,506 | 14,324 | 13,500 | 10,413 | 495 | 542,408 * |

* Or 102¾ miles.

## Table E.
### Statement of Gas paid for in each month of the year.
Being the Amount of Bills as per Meters to the First Day of the Month.

| 1851. | Feet of Gas consumed at Private Houses. | Public Lamps. | Districts. Spring-garden. | Southwark. | Moyamensing. | Total. |
|---|---|---|---|---|---|---|
| January | 17,948,000 | .. | 6,876,600 | 1,255,800 | 130,500 | 26,210,900 |
| February | 15,995,700 | .. | .. | .. | .. | 15,995,700 |
| March | 13,733,000 | 10,248,875 | .. | .. | .. | 23,981,875 |
| April | 16,699,700 | .. | 6,848,100 | 1,286,200 | 193,400 | 25,027,400 |
| May | 12,650,100 | .. | .. | .. | .. | 12,650,100 |
| June | 10,636,600 | 9,057,875 | .. | .. | .. | 19,694,475 |
| July | 10,544,200 | .. | 191,700 | 921,100 | 211,300 | 11,848,300 |
| August | 6,559,800 | .. | .. | .. | .. | 6,559,800 |
| September | 5,950,700 | 7,335,075 | .. | .. | .. | 13,285,775 |
| October | 9,049,200 | .. | .. | 909,300 | 256,000 | 10,214,500 |
| November | 10,920,200 | .. | .. | .. | .. | 10,920,200 |
| December | 12,244,600 | 9,882,800 | .. | .. | .. | 22,126,800 |
| | 142,911,200 | 36,524,625 | 13,916,400 | 4,372,400 | 791,200 | 198,515,825 |

Inventory of Stock of Gas delivered and on hand.

| | Feet. | |
|---|---|---|
| January 1, 1852 | 40,796,400 | |
| January 1, 1851 | 43,251,300 | |
| | | 2,454,900 |
| Total in the year ending December 31, 1851 | | 196,060,925 |

## Table F.
### Annual Registry of Consumers and of Private and Public Lights.

| Date. To Dec. 31. | Applications. | Removals, Discontinances. | Total Number of Consumers. | Private Lights. Added. | Private Lights. Total. | Public Lights. Streets. | Public Lights. Market-houses. | Public Lights. Squares. | Public Lights. Total. |
|---|---|---|---|---|---|---|---|---|---|
| 1836 | 301 | 24 | 277 | 2,952 | 2,952 | 165 | .. | .. | 165 |
| 1837 | 497 | 108 | 666 | 3,862 | 6,814 | 136 | .. | .. | 301 |
| 1838 | 849 | 174 | 1,341 | 4,288 | 11,102 | 133 | .. | 62 | 496 |
| 1839 | 916 | 300 | 1,987 | 5,380 | 16,482 | 162 | 18 | .. | 676 |
| 1840 | 788 | 382 | 2,393 | 3,317 | 19,799 | 112 | 1 | .. | 789 |
| 1841 | 874 | 493 | 2,774 | 4,387 | 24,186 | 13 | 8 | .. | 810 |
| 1842 | 845 | 541 | 3,078 | 3,054 | 27,240 | 30 | .. | .. | 840 |
| 1843 | 986 | 635 | 3,429 | 3,418 | 30,658 | 59 | .. | .. | 899 |
| 1844 | 1,000 | 503 | 3,926 | 4,940 | 35,598 | 195 | .. | .. | 1,094 |
| 1845 | 1,147 | 629 | 4,444 | 5,754 | 41,352 | 112 | .. | .. | 1,206 |
| 1846 | 1,465 | 717 | 5,192 | 8,138 | 49,490 | 96 | .. | .. | 1,302 |
| 1847 | 1,869 | 887 | 6,174 | 12,987 | 62,477 | 84 | 10 | .. | 1,396 |
| 1848 | 1,956 | 1,002 | 7,128 | 13,935 | 76,412 | 21 | .. | .. | 1,417 |
| 1849 | 2,191 | 1,180 | 8,139 | 18,050 | 94,462 | 74 | .. | .. | 1,491 |
| 1850 | 2,227 | 1,150 | 9,216 | 20,542 | 115,004 | 72 | 13 | .. | 1,576 |
| 1851 | 2,529 | 1,339 | 10,406 | 21,616 | 136,620 | 124 | .. | .. | 1,700 |
| Total | 20,470 | 10,064 | .. | 136,620 | .. | 1588 | 50 | 62 | — |

## Table G.
### Statement of Meters set each year.

| Date. To Dec. 31. | Services Laid. | Meters Set. 3 light. | 5 light. | 10 light. | 20 light. | 30 light. | 45 light. | 60 light. | 100 light. |
|---|---|---|---|---|---|---|---|---|---|
| 1836 | 251 | 108 | 98 | 31 | 9 | 2 | 3 | — | — |
| 1837 | 411 | 301 | 77 | 19 | 6 | 3 | 3 | .. | 3 |
| 1838 | 690 | 442 | 159 | 61 | 13 | 9 | 2 | 1 | 3 |
| 1839 | 649 | 421 | 118 | 75 | 26 | 6 | 3 | — | — |
| 1840 | 350 | 198 | 78 | 54 | 13 | 3 | 2 | .. | 2 |
| 1841 | 375 | 293 | 93 | 63 | 14 | 2 | — | — | — |
| 1842 | 299 | 157 | 76 | 57 | 6 | 3 | — | — | — |
| 1843 | 348 | 180 | 110 | 50 | 7 | 1 | — | — | — |
| 1844 | 503 | 292 | 129 | 72 | 5 | 3 | 1 | .. | 1 |
| 1845 | 523 | 311 | 151 | 49 | 7 | 4 | .. | 1 | — |
| 1846 | 761 | 390 | 237 | 113 | 14 | 4 | 2 | 1 | — |
| 1847 | 999 | 481 | 300 | 202 | 12 | 1 | 3 | — | — |
| 1848 | 971 | 408 | 333 | 196 | 25 | 4 | 3 | 1 | 1 |
| 1849 | 1,029 | 366 | 366 | 234 | 46 | 7 | 5 | 2 | 3 |
| 1850 | 1,079 | 435 | 412 | 165 | 50 | 8 | 3 | 3 | 3 |
| 1851 | 1,211 | 534 | 373 | 204 | 76 | 15 | 4 | 2 | 3 |
| Total | 10,449 | 5,227 | 3,110 | 1,645 | 329 | 74 | 34 | 11 | 19 |

TABLE H.

LENGTH OF MAINS LAID IN STREETS EACH YEAR, IN LINEAL FEET.

| DATE. | 1¼ inch. | 2 inch. | 3 inch. | 4 inch. | 6 inch. | 8 inch. | 10 inch. | 12 inch. | 16 inch. | 20 inch. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1836 | .. | 2,310 | 15,951 | 10,184 | 4,018 | .. | 9,140 | .. | .. | .. | 41,603 |
| 1837 | .. | 3,468 | 13,068 | 4,302 | 6,984 | .. | .. | .. | .. | .. | 27,822 |
| 1838 | .. | 150 | 15,660 | 14,469 | 9,036 | .. | 27 | 10,881 | 2,340 | .. | 52,503 |
| 1839 | .. | 1,704 | 11,629 | 11,997 | 4,419 | 3,726 | .. | .. | .. | .. | 33,475 |
| 1840 | .. | 224 | 1,674 | 576 | 261 | .. | .. | .. | .. | .. | 2,733 |
| 1841 | .. | 204 | 8,874 | 7,137 | 27 | .. | .. | .. | .. | .. | 16,242 |
| 1842 | .. | 324 | 6,831 | 3,483 | 360 | 774 | .. | .. | .. | .. | 11,772 |
| 1843 | .. | 966 | 32,796 | 16,767 | 1,395 | 1,053 | .. | .. | .. | .. | 52,977 |
| 1844 | .. | 30,696 | 38,655 | 23,555 | 2,358 | 3,663 | 891 | .. | .. | .. | 99,818 |
| 1845 | 426 | 3,240 | 9,360 | 4,725 | 837 | .. | .. | .. | .. | .. | 18,588 |
| 1846 | .. | 10,734 | 9,855 | 8,442 | 378 | 2,070 | .. | .. | .. | .. | 31,479 |
| 1847 | .. | 4,164 | 6,690 | 2,808 | 900 | 135 | .. | .. | .. | .. | 14,667 |
| 1848 | .. | 1,734 | 7,578 | 3,897 | 1,458 | 477 | .. | .. | .. | .. | 15,144 |
| 1849 | .. | 9,690 | 9,117 | 5,724 | 2,934 | 13,284 | 4,266 | 2,619 | 8,073 | 495 | 56,202 |
| 1850 | .. | 6,666 | 9,513 | 6,345 | 2,718 | .. | .. | .. | .. | .. | 25,242 |
| 1851 | .. | 11,901 | 18,441 | 10,755 | 720 | 324 | .. | .. | .. | .. | 42,141 |
| Total | 426 | 88,173 | 215,662 | 135,106 | 38,803 | 25,506 | 14,324 | 13,500 | 10,413 | 495 | 542,408 |

TABLE I.

STATEMENT OF GAS DELIVERED TO PUBLIC AND PRIVATE LIGHTS TO DEC. 31 IN EACH YEAR.

| Year. | Public Lights. | Private Lights. | Spring-garden. | South-wark. | Moya-mensing | Used at Offices, Shop, and Works, and Loss by Leakage, &c. | Made at Works. |
|---|---|---|---|---|---|---|---|
| 1836 | 978,812 | 4,752,740 | .. | .. | .. | 749,748 | 6,481,300 |
| 1837 | 1,397,687 | 14,454,891 | .. | .. | .. | 1,226,122 | 17,078,700 |
| 1838 | 3,013,546 | 22,366,004 | .. | .. | .. | 1,977,450 | 27,357,000 |
| 1839 | 6,380,654 | 30,658,145 | .. | .. | .. | 2,534,201 | 39,473,000 |
| 1840 | 8,028,818 | 34,874,380 | .. | .. | .. | 2,506,802 | 45,410,000 |
| 1841 | 10,208,180 | 39,648,000 | .. | .. | .. | 1,415,820 | 51,272,000 |
| 1842 | 13,292,000 | 36,596,830 | .. | .. | .. | 922,170 | 50,811,000 |
| 1843 | 12,985,851 | 34,579,900 | .. | .. | .. | 1,324,249 | 48,890,000 |
| 1844 | 13,608,356 | 40,022,800 | .. | .. | .. | 1,152,844 | 54,784,000 |
| 1845 | 17,373,798 | 46,702,800 | .. | .. | .. | 926,402 | 65,003,000 |
| 1846 | 19,164,106 | 55,219,800 | 163,400 | .. | .. | 905,694 | 75,454,000 |
| 1847 | 19,122,293 | 68,071,600 | 2,507,100 | .. | .. | 1,846,007 | 91,547,000 |
| 1848 | 19,921,700 | 78,921,350 | 6,817,000 | .. | .. | 1,109,950 | 106,773,000 |
| 1849 | 24,524,950 | 95,247,100 | 10,713,200 | 2,322,800 | 195 800 | 1,505,150 | 135,509,000 |
| 1850 | 28,482,800 | 131,258,400 | 17,650,600 | 3,457,800 | 417,900 | 748,500 | 182,016,000 |
| 1851 | 36,524,625 | 145,114,200 | 7,039,800 | 5,279,000 | 1,254,700 | 5,629,675 | 205,842,000 |
| | | | | | | | 1,198,701,000 |

THE RATING OF PUBLIC COMPANIES.—The property held by railway, gas, water, and other public companies, is estimated to amount to the large sum of £400,000,000 sterling, and from the want of any definite principle of rating such property to the relief of the poor, and other matters, great loss and inconvenience are constantly arising, and which, there is every reason to apprehend, will continue to be the case till some remedy is applied. Many of the parochial authorities, both metropolitan and provincial, are therefore addressing the Poor-Law Board on the subject, and intreating them to direct their attention to the subject with the least possible delay, in order that a legislative enactment may be obtained in the ensuing session of Parliament, declaring the principle upon which all public companies shall in future be rated. Such a measure, it is urged, would prevent a great deal of useless and expensive litigation, which has hitherto entirely failed of giving satisfaction, either to parishes or public companies; and to which subject the Poor-Law Board have promised to direct their attention.

VENTILATION OF ROOMS.—Now that gas stoves are getting into use—by which, as by the Arnott's stove, very little air is carried up the chimney—ventilation becomes quite essential to keep the air of the room in a wholsome, respirable state. This may often—not always—be done by good management of the window; but the most effectual and constant means is Arnott's chimney valve, which requires an opening into the chimney near the ceiling. The valve shall be described below; but a very simple method of making the opening, without defacing the front of the chimney, was recommended five or six years ago in the *Journal of the Public Health*. It is simply to build a round drain tile (about four inches diameter) into the chimney, at the top of the room. This can be stopped, if not wanted; and, when required, opened by merely cutting away the plastering, and the Arnott's valve fixed before it. The simplest form of this valve is a plate of metal, with a round hole) about four inches diameter for an ordinary room) crossed by a brass wire grating of half-inch squares, behind which hangs a little silk curtain, with a wire at the bottom to keep it flat. So long as there is an up draught, the curtain is drawn in toward the chimney, and leaves the hole open; but on the slightest downward current, the curtain is pressed against the grating, and prevents the return of smoke or foul air to the room.

THE HYDRO-CARBON CANNEL GAS AT SOUTHPORT.—The following report was read at a meeting of the Improvement Commissioners, held on Aug. 31:—"Your committee feel themselves unable to give a minute report of the cost of gas since they commenced making it from Boghead cannel, owing to the considerable alterations that have been in progress at the works since they commenced using that article. The committee beg to give the following particulars:—The quantity of gas registered by station meter from April 5 to May 12, 1852, is 224,000 feet; registered by small meters (as used by consumers), from May 12 to August 12, 246,500 feet net. [It was explained that the reason why the registration by the small meters was given to be added to that denoted by the station meter was because the latter had not been used for some length of time, as it had been removed during the alterations—its position, we believe, being changed.]

| | | | |
|---|---|---|---|
| Cost for cannel | £29 | 11 | 3 |
| „ coals | 23 | 19 | 0 |
| „ charcoal | 5 | 2 | 0 |
| „ lime | 4 | 9 | 0 |
| „ labour | 24 | 1 | 0 |
| „ interest | 36 | 0 | 0 |
| | £123 | 2 | 3 |
| The amount produced from gas, after deducting leakage and condensation, is | 144 | 0 | 0 |
| Tar on hand (about) | 8 | 10 | 0 |
| | £152 | 10 | 0 |

Leaving a balance of £29. 7s. 9d. profit.*

Your committee beg to remind the board that the cost of coals, labour, lime, and charcoal, is much heavier in this account than it will be during the remainder of the year; a very small additional cost in most of these items will be required to make double the quantity of gas."—Some remarks were made as to an unpleasant smell which had been perceived by several persons when the gas was burning. Mr. Hodgkinson explained that the reason would probably be that they were not at that time using their "dry-lime purifier."—*Southport Visitor.*

SOUTH ESSEX GAS COMPANY.—A scheme for lighting with gas the villages on the borders of Epping Forest has been brought forward under this title, but with doubtful prospects of success. The advance which has lately taken place in iron is very unfortunate for a project requiring upwards of 20 miles of pipes, two-thirds of which are to be laid in uninhabited lanes and roads, and the rest in suburban villages.

SHEFFIELD.—The Sheffield United Gas Company have intimated their intention to reduce the price of gas to 3s. per 1000 feet from Lady-day next.

DUBLIN.—The Hibernian (United General) Gas Company, and the Alliance and Consumers' Gas Company, have both reduced the price of their gas to private consumers from 5s. 10d. to 5s. per 1000 feet.

MALAGA.—The authorities have contracted with M. Louis Gosse, of Madrid, for the public lighting of this city with gas for 30 years, at one farthing per lamp per hour. An unsuccessful attempt has been made to form a company of Lyons capitalists for carrying this contract into execution.

LAMPLIGHTING.—The antiquated gas lamplighter's lantern, long used for lighting the public lamps, is fast disappearing in the metropolis, its duty being superseded by a bundle of lucifer matches, carried in the pocket of the lamplighter, and ignited by a scratch on the burner while in the act of turning the cock. The cost is considerably less than it was formerly with oil; and, as the matches are well dried before being taken out for use, their ignition is quick and certain.

* In this estimate of profit, the wear and tear of retorts and works, salaries, incidental expenses, and many other charges, are overlooked; and it is worthy of remark that the tar is credited at nearly one-third of the cost of the cannel. The complaints of "unpleasant smells" during the combustion of the gas, notwithstanding the enormous charge for lime, prove the difficulty experienced in purifying this gas from carbonic acid and sulphuretted hydrogen.


## Advertisements.

**ADDISON POTTER,**
WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire Bricks, and every description of Fire Clay Goods.

**LOSH, WILSON, and BELL,**
NEWCASTLE-ON-TYNE,
Manufacturers of Bar Iron, Railway Bars, Forge and Engine Work, Cast Iron Goods, and STEWART'S PATENT CAST IRON GAS AND WATER PIPES.
Office, No. 7, Size-lane, London.

**WEST and GREGSON,**
GAS METER MANUFACTURERS, BRASSFOUNDERS, &c., UNION-STREET, OLDHAM.
Station and Experimental Meters, Gas Pressure Registers, Gauges, Experimental Gasholders, Governors, Slide Valves, &c. &c.

ESTABLISHED IN 1834.
**S. KING, Gas Meter Manufacturer,**
21, Cock-lane, West Smithfield, London.
Meters made of the best materials and workmanship, with all the recent improvements, and warranted correct in registration.

CARTER'S PATENT SAFETY GAS VALVES.
**THOMAS LAMBERT and SON,**
PATENTEES AND MANUFACTURERS,
SHORT STREET, NEW CUT, BLACKFRIARS, LONDON.
The Bank of England is fitted entirely with these Valves, from the smallest branch to the largest main pipe.
The following, among numerous testimonials, will be found very satisfactory:—
"The British Gaslight Company's Office, No. 105, Broad-street, Ratcliff, London, June 10, 1846.
"Gentlemen,—In reply to your inquiry, I have to state that 'Carter's Patent Gas Valve' has been used by this company and by the fitters of the district extensively for seven years past. It was adopted to obviate the inconvenience of setting fast, so prevalent with the conical metal plug-cocks, and has been found to answer the purpose intended.
"I have recommended its use in several provincial towns with which I am professionally connected, and have not received any complaint of its having failed in any respect of performing satisfactorily all that is required of it.
"I am, gentlemen, yours respectfully,
"GEDDIE PEARSE.
"Messrs. Lambert and Son, Lambeth."

**HARPERS AND MOORE,**
DELPH FIRE CLAY WORKS, STOURBRIDGE.
London Depot,
No. 7, WENLOCK-ROAD, CITY-ROAD,
where they have always on hand a large stock of their best Stourbridge Fire Bricks, Lumps, Quarries, Burrs, Gas Retorts, Crucibles, &c. &c.
Fire goods of every description made to order.

METER INDICES.
**J. CLUER, Gas Meter, Index Maker,**
and Model Machinist, No. 1, Bowling-green-lane, Clerkenwell, London.
INDICES and all other Apparatus for Gas Meters of every size and kind, made on the shortest notice, of the best metal, and of superior workmanship.

**H. JONES, Gas Meter Manufacturer,**
No. 44, OLD-STREET, St. Luke's, London, begs respectfully to call the attention of Gas Companies to his latest improvements in the WET METER, by means of which water cannot be abstracted, neither can Gas by any possibility pass through the Meter without registering.

# Share List.

(Directors and Managers of Gas Works are earnestly requested to enable us to rectify any errors and fill up the omissions in the following List.)

*The Companies whose names are printed in italic type are incorporated by Act of Parliament.*

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | **ENGLAND.** | £ s. d | £ s. d | £ s. d |
| | | Aberdare | | | |
| | | Aberystwith | | | |
| | | Abingdon | | | |
| | | *Accrington* £7000 | | 5 0 0 | |
| | | Albrighton | | | |
| | | Alcester | | | |
| | | Alford, Lincolnsh. | | | |
| | | Alfreton | | | |
| | | Alnwick | | | |
| | | Alston Moor | | | |
| 250 | 10 | Alton | 10 0 0 | 5 0 0 | 10 0 0 |
| 800 | 5 | Altrincham | 5 0 0 | 6 0 0 | |
| | | Amlwch | | | |
| 160 | 10 | Ampthill | 10 0 0 | 5 0 0 | 10 0 0 |
| 350 | 10 | Andover | 10 0 0 | 6 0 0 | 11 0 0 |
| | | Appleby | | | |
| | | Arundel | | | |
| | | Ashbourn, Derby | | | |
| | | Ashburton | | | |
| | | Ashby-de-la-Zouch | | | |
| | | Ashford, Kent | | | |
| 1600 | 25 | *Ashton-under-Lyne* | 25 0 0 | 10 0 0 | 52 0 0 |
| | | Atherstone | | | |
| | | Axminster | | | |
| 200 | 20 | Aylesbury | 20 0 0 | 5 0 0 | 21 0 0 |
| | | Aylsham, Norfolk | | | |
| | | Bacup, Lancashire | | | |
| | | Bakewell | | | |
| | | Baldock | | | |
| 140 | 25 | Banbury | 25 0 0 | 10 0 0 | 50 0 0 |
| | | Bangor | | | |
| 500 | 5 | Barking, Essex | 4 10 0 | 5 11 0 | 5 0 0 |
| 250 | 10 | Barnard Castle | 10 0 0 | 5 10 0 | 10 15 0 |
| | | Barnet | | | |
| | | *Barnsley* £6000 | | 7 10 0 | |
| 100 | 20 | Barnstaple | 20 0 0 | 5 0 0 | 23 0 0 |
| | | Barton | | | |
| 120 | 25 | Basingstoke | 25 0 0 | 8 0 0 | 28 0 0 |
| 2400 | 20 | *Bath* | 16 0 0 | 6 0 0 | 25 to 30 |
| | | Battle £2000 | | 6 0 0 | |
| 56 | 26½ | Bawtry | 26 10 0 | 5 0 0 | 25 0 0 |
| | | Beaumaris | | | |
| | | Beccles, Bungay, and Lowestoft | | | |
| 300 | 30 | Bedford | 25 0 0 | 4 0 0 | 20 0 0 |
| | | Bedworth | | | |
| | | Belford | | | |
| | | Bedale, Yorkshire | | | |
| | | Belper | | | |
| | | Beminster | | | |
| | | Berkhempstead | | | |
| 700 | 5½ | Berwick-on-Tweed | 5 10 0 | 6 8 0 | 5 15 0 |
| | | Beverley | | | |
| | | Bewdley | | | |
| 280 | 10 | Bideford | 10 0 0 | 6 0 0 | 10 10 0 |
| | | Biggleswade | | | |
| 160 | 10 | Bicester | 10 0 0 | 5 0 0 | 10 0 0 |
| | | *Bilston* £15,100 | | 8 0 0 | |
| | | Billericay | | | |
| | | *Bingley* £7400 | | 4 0 0 | |
| | | *Birkenhead* £70,000 | 35 0 0 | 3 0 0 | 35 to 37 |
| 2400 | 50 | *Birmingham and Staffordshire* | 50 0 0 | 10 0 0 | 96 to 97 |
| | 25 | *Ditto*, new shares | 7 10 0 | 10 0 0 | 10 pm. |
| 928 | 75 | *Birmingham* | 75 0 0 | 10 0 0 | 149 to 151 |
| | | Bishop's Auckland | | | |
| 140 | 25 | Bishop's Stortford | 25 0 0 | 5 0 0 | 24 0 0 |
| | | *Blackburn* £30,000 | | 10 0 0 | |
| | | Blackpool | | | |
| | | Blandford | | | |
| | | Blythe | | | |
| | | Bodmin | | | |
| | | Bognor | | | |
| | | *Bolton* £38,582 | | 9 19 5 | |
| | | Boroughbridge | | | |
| | | *Boston* £8000 | | 10 0 0 | |
| 200 | 10 | Bourn | 10 0 0 | 5 0 0 | |
| | | Brackley | | | |
| | | Bradford, Wilts | | | |
| | | *Bradford, Yorksh.* £15,000 | | 9 10 0 | |
| | | Brampton, Cumb. | | | |
| | | Brandon, Suffolk | | | |
| | | Brecon | | | |
| | | Bridge-end, Glam. | | | |
| | | *Brierly Hill* | | | |
| 2250 | 20 | *Brighton* | 20 0 0 | 5 0 0 | 15 to 17 |
| 1125 | 20 | „ new shares | 16 0 0 | 5 0 0 | 10 to 12 |
| | | *Brighton and Hove* £50,276 | | 3 10 0 | |
| 4250 | 20 | *Bristol* | 20 0 0 | 9 0 0 | 37 0 0 |
| 1725 | 25 | *Bristol and Clifton* | 25 0 0 | 6 0 0 | 25 0 0 |
| | | Brixham | | | |
| | | Braintree | | | |
| 750 | 50 | *Brentford* | 50 0 0 | 6 0 0 | 44 to 46 |
| 800 | 25 | „ new shares | 11 0 0 | 6 0 0 | 11 0 0 |
| | | Brentwood | | | |
| | | *Bridgwater* £6000 | | 5 0 0 | |
| 400 | 10 | Bridlington | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Bridport | | | |
| | | Brigg | | | |
| | | Broadstairs | | | |
| 100 | 50 | Bromley, Kent | 50 0 0 | 6 0 0 | 52 10 0 |
| | | Bromsgrove | | | |
| | | Broughton | | | |
| 120 | 10 | Bruton | 10 0 0 | 4 0 0 | 8 0 0 |
| | | Brynmawr | | | |
| 100 | 25 | Buckingham | 25 0 0 | 5 0 0 | 25 0 0 |
| | | Bungay (see Becls.) | | | |
| | | Burford | | | |
| | | *Burnley* £19,946 | | 4 10 2 | |
| | | Burslem & Tunstall | | | |
| | | Burton-on-Trent | | | |
| | | *Bury, Lanc.* £6570 | | | |
| | | *Bury St. Edmund's* | | | |
| 200 | 10 | Buxton | 10 0 0 | | |
| | | Callington | | | |
| | | Calne, Wilts | | | |
| | | Camborne | | | |
| | | *Cambridge* £34,560 | | 7 0 0 | |
| 240 | 50 | *Canterbury* | 50 0 0 | 6 0 0 | 57 to 58 |
| 240 | 25 | *Ditto*, second issue | 25 0 0 | 6 0 0 | 28 to 29 |
| | | *Cardiff* £12,000 | | 7 10 0 | |
| | | Carmarthen | | | |
| | | Castleford | | | |
| | | Chapel on the Frith | | | |
| | | Chard | | | |
| | | Chatteris | | | |
| | | Cheadle | | | |
| | | Chelmsford | | | |
| | | *Cheltenham* £18,732 | | 8 10 0 | |
| | | Chepstow | | | |
| | | Chertsey | | | |
| 230 | 10 | Chesham, Bucks | 10 0 0 | | |
| | | Chester | | | |
| | | Chester-le-Street | | | |
| | | *Chesterfield* £13,123 | | 4 17 6 | |
| 240 | 25 | Chichester | 25 0 0 | 6 0 0 | 30 0 0 |
| | | Chippenham | | | |
| | | Chipping Norton | | | |
| | | Chirk | | | |
| | | Chorley | | | |
| | | Christchurch | | | |
| | | Chudleigh | | | |
| | | Cirencester | | | |
| | | *Clifton (Bristol and* | | | |
| | | Cleckheaton, York. | | | |
| | | Clitheroe | | | |
| | | Cockermouth | | | |
| | | Colchester | | | |
| | | Collumpton | | | |
| | | Colne, Lancashire | | | |
| | | Coleford, Gloucest. | | | |
| | | Coggeshall | | | |
| | | *Congleton* £5000 | | 5 0 0 | |
| | | Cowbridge | | | |
| | | Corsham | | | |
| 800 | 25 | *Coventry* | 25 0 0 | 6 0 0 | 24 to 25 |
| | | Cowes | | | |
| | | Crewkerne | | | |
| | | *Croydon* £20,000 | | 5 0 0 | |
| | | Cranbrook £1900 | | 5 0 0 | |
| | | Crayford | | | |
| | | Crediton | | | |
| | | Crewe, Cheshire | | | |
| | | Cricklade | | | |
| | | Darlaston | | | |
| | | *Darlington* | | | |
| 250 | 20 | Dartford | 20 0 0 | 7 10 0 | 27 0 0 |
| | | Dartmouth | | | |
| 125 | 20 | Daventry | 20 0 0 | 6 0 0 | 24 8 0 |
| | | Dawley, Salop | | | |
| | | Dawlish | | | |
| | | Dedington | | | |
| 500 | 6 | Denbigh | 6 0 0 | 5 0 0 | 6 0 0 |
| 820 | 10 | Deptford | 10 0 0 | 5 0 0 | 1 to 2 |
| 325 | 50 | *Derby* | 50 0 0 | 10 0 0 | |
| 90 | 20 | Dereham (East) | 20 0 0 | 4 10 0 | |
| 1000 | 5 | *Dewsbury* | 5 0 0 | 10 0 0 | 8 12 6 |
| | | Devizes | | | |
| 4000 | 5 | *Devonport* | 5 0 0 | 6 0 0 | 6 5 0 |
| 280 | 25 | Dorchester | 25 0 0 | 5 0 0 | 30 0 0 |
| 120 | 25 | Dorking | 20 10 0 | 5 0 0 | 21 10 0 |
| | | Douglas, Isle of M. | | | |
| 209 | 56¼ | *Dover* | 56 10 0 | 5 15 0 | 71 to 72 |
| | | Downham | | | |
| | | Driffield | | | |
| | | Droitwich | | | |
| 600 | 20 | *Dudley* | 20 0 0 | 4 0 0 | 18 to 20 |
| | | Droylsden | | | |
| | | Dunmow | | | |
| | | Dunstable | | | |
| | | Durham | | | |
| 276 | 9 | Dursley, Gloster | 9 0 0 | 5 10 0 | 8 0 0 |
| 300 | 10 | Eastbourne | | | |
| | | East Grinstead | | | |
| | | Elland | | | |
| | | Ellesmere | | | |
| | | Eltham | | | |
| | | Enfield | | | |
| 300 | 19 | Epsom and Ewell | 19 0 0 | | |
| | | Evesham | | | |
| | | *Exeter* £40,000 | | 10 0 0 | |
| | | Exmouth | | | |
| | | Eye, Suffolk | | | |
| | | Fairford | | | |
| 61 | 25 | Fakenham | 25 0 0 | 5 0 0 | 25 0 0 |
| | | Falmouth | | | |
| | | Fareham | | | |
| 120 | 25 | Farnham | 25 0 0 | 10 0 0 | 42 0 0 |
| | | Farringdon | | | |
| | | Faversham | | | |
| | | Ferrybridge | | | |
| | | Fleetwood | | | |
| 300 | 10 | Folkestone | 10 0 0 | 10 0 0 | 15 0 0 |
| 240 | 10 | „ new shares | 8 0 0 | 10 0 0 | 13 0 0 |
| | | Fowey | | | |
| 240 | 5 | Framlingham | 5 0 0 | 5 0 0 | 5 0 0 |
| | | Frome | | | |
| | | Garstang | | | |
| | | Gillingham, Dorset | | | |
| | | Glastonbury | | | |
| | | *Glossop* £10,000 | | 9 0 0 | |
| 1000 | 25 | *Gloucester* | 25 0 0 | 7 10 0 | 28 0 0 |
| | | Gomersal | | | |
| | | Godalming | | | |
| | | Gosport | | | |
| | | Grantham | | | |
| 1000 | 20 | Gravesend | 20 0 0 | 5 0 0 | 21 0 0 |
| 1000 | 10 | *Great Grimsby* | 8 0 0 | 8 0 0 | 12¾ to 13½ |
| | 25 | Guildford | 25 0 0 | 4 0 0 | 20 0 0 |
| | | Guisborough | | | |
| | | Hadleigh | | | |
| | | Hales Owen | | | |
| 300 | 6 | Halesworth | 6 0 0 | 7 10 0 | 5 10 0 |
| | | *Halifax* £15,000 | | 10 0 0 | |
| | | Halstead | | | |
| | | Hampton Court | | | |
| | | *Harrogate* £10,000 | | 5 0 0 | |
| | | Harrow on the Hill | | | |
| | | *Harttepool* £15,137 | | 7 10 0 | |
| | | Haslingden, Lansh. | | | |
| 330 | 50 | Hastings and St. L. | 50 0 0 | 6 0 0 | 60 0 0 |
| | | Havant | | | |
| | | Haverhill | | | |
| | | Haworth, Yorks. | | | |
| | | Hayle | | | |
| | | Helstone | | | |
| | | Hemel Hempstead | | | |
| 300 | 10 | Henley-on-Thams. | 10 0 0 | | |
| | | *Hereford* £5300 | | 4 0 0 | |
| | | Herne Bay | | | |
| 270 | 10 | Hexham | 10 0 0 | 7 0 0 | 12 0 0 |
| | | *Heywood* £10,000 | | 5 0 0 | |
| | | Highworth (Wilts) | | | |
| 230 | 10 | Hinckley | 10 0 0 | 5 0 0 | 7 0 0 |
| | | Hindley, Lancash. | | | |
| | | Hitchen | | | |
| | | Hythe | | | |
| | | Hoddesden | | | |
| | | Holbeach | | | |
| | | *Holmfirth* £8880 | | 3 10 0 | |
| | | Holyhead | | | |
| | | Holywell (see British Provincial) | | | |
| | | Honiton | | | |
| | | Horncastle | | | |
| 10 | | Houghton-le-Sprg. | 10 0 0 | 8 0 0 | |
| | | Horsham | | | |
| | | Howden | | | |
| | | Hull, Sculcoats (see British Provin.) | | | |
| | | *Hull*, £11,712. 10s. | | 5 0 0 | |
| | | Hunmanby | | | |
| 210 | 10 | Hungerford | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Huddersfield | | | |
| 520 | 5 | High Wycombe | 5 0 0 | 6 0 0 | 6 16 0 |
| | | Idle and Eccleshill | | | |
| | | Ilkeston | | | |
| | | Ilminster | | | |
| | | Ilford | | | |
| | | Ilfracombe | | | |
| | | Ironbridge | | | |
| 1400 | 10 | *Ipswich* | 10 0 0 | 8 0 0 | 15 0 0 |
| 1400 | 10 | „ new shares | 7 10 0 | 8 0 0 | 12 10 0 |
| 800 | 25 | *Isle of Thanet* | 20 0 0 | 5 0 0 | 20 to 21 |
| | | *Kendal* £9100 | | 8 15 0 | |
| | | Kenilworth | | | |
| | | Keswick | | | |
| 100 | 25 | Kettering | 25 0 0 | 5 0 0 | 25 0 0 |
| | | *Kiddermins.* £10000 | | 5 0 0 | |
| | | King's Langley | | | |
| | | Kington, Hereford | | | |
| | | Kirkby Lonsdale | | | |
| | | Kirkham, Lanc. | | | |
| | | Knutsford | | | |
| | | Lancaster | | | |
| | | *Llanelly* £3000 | | 5 0 0 | |
| | | Llandovery | | | |
| | | *Leamington Priors* £22,500 | | 6 0 0 | |
| | | Leatherhead | | | |
| | | Ledbury | | | |
| | | *Leeds Old Comp.* old stk., £60,300 | | 10 0 0 | |
| | | new „ £23,775 | | 6 0 0 | |
| | | *Leeds New* £60,000 | | 10 0 0 | |
| | | Leek | | | |
| | | *Leicester* £36,230 | | 7 0 0 | |
| | | Leigh | | | |
| 135 | 20 | Leighton Buzzard | 20 0 0 | 5 0 0 | |
| | | Leominster | | | |
| | | Leyburn, Yorksh. | | | |
| | | Liskeard | | | |
| 330 | 25 | Lewes | 25 0 0 | 5 0 0 | 25 0 0 |
| | | *Lincoln* £8000 | | 10 0 0 | |
| | | Leyland, Lancash. | | | |
| | | Littlehampton | | | |
| 250 | 20 | Lichfield | 20 0 0 | 10 0 0 | 30 0 0 |
| | | *Liverpool United* | 100 0 0 | 10 0 0 | 209 to 211 |
| | | „ ½ sh. | 25 0 0 | 10 0 0 | 52 to 53 |
| | | Langport | | | |
| | | London Comps.— | | | |
| 5000 | 20 | British Provincial (Holywell, Hull, Norwich, Potteries, Trowbridge) | 20 0 0 | 7 0 0 | 20 to 22 |
| | 20 | „ Prov., new | 14 0 0 | 7 0 0 | 12 to 14 |
| 4000 | 25 | *Commercial* | 25 0 0 | 6 0 0 | 31 to 33 |
| 2000 | 25 | „ new shares | 2 10 0 | 6 0 0 | par to 2pm |
| | | „ deb. £12,000 | | | |
| 12,000 | 50 | *Chartered* | 50 0 0 | 4 0 0 | 36 to 37 |
| 6000 | 50 | „ new shares | 10 0 0 | 4 0 0 | 6 to 7 |
| 2000 | 150 | *City of London* | 150 0 0 | 4 0 0 | 120 to 125 |
| 4000 | 50 | *Equitable* | 50 0 0 | 2 10 0 | 25 to 26 |
| | | „ deb. £46,000 | | | |
| 10,000 | 20 | European— (Amiens, Boulogne, Caen, Havre, Nantes, and Rouen) | 20 0 0 | 5 0 0 | 12 to 15 |
| 2000 | 20 | „ do. new | 7 0 0 | 5 0 0 | 5 to 6 |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| 15,000 | 10 | *Gt. Cntl. Consumers* | 10 0 0 | 10 0 0 | 14 to 15 |
| | | *Impl. Continental*—First capital (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam) | 42 0 0 | 6 11 0 | 44 to 46 |
| 8000 | 50 | | | | |
| 7000 | 50 | Second capital—(Aix la Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Marseilles, Toulouse Vienna) | 41 0 0 | 10 7 0 | 70 to 73 |
| | 50 | Third capital | 43 10 0 | 9 4 0 | 65 to 70 |
| 10,000 | 50 | *Imperial* | 50 0 0 | 6 0 0 | 85 to 90 |
| 3000 | 50 | „ new shares | 45 0 0 | 6 0 0 | 65 to 67 |
| | | „ debentures £50,500 | | | |
| 4000 | 40 | *Independent* | 40 0 0 | 6 0 0 | 46 to 47 |
| 3000 | 50 | *London* | 50 0 0 | | 3 0 0 |
| 6000 | 25 | „ preference | 25 0 0 | 6 0 0 | 25 0 0 |
| 3000 | 50 | „ 2nd do. | 50 0 0 | | 15 to 18 |
| 9000 | 50 | *Phœnix* | 49 0 0 | 3 10 0 | 26 to 27 |
| 1000 | 100 | *Ratcliff* | 90 0 0 | 5 0 0 | 65 to 70 |
| 4000 | 25 | *South Metrop.* | 25 0 0 | 5 0 0 | 21 to 22 |
| 7000 | 10 | Surrey Consumers' | 10 0 0 | 4 0 0 | |
| 9000 | 50 | United General—(Cork, Dublin, Limerick) | 50 0 0 | 2 0 0 | 21 to 23 |
| 12,500 | 20 | Western | 20 0 0 | 2 0 0 | 10 0 0 |
| | | Lostwithiel | | | |
| | | Loughborough | | | |
| 240 | 25 | *Louth* | 25 0 0 | 6 0 0 | 26 10 0 |
| | | Lowestoft (see Bec. | | | |
| 611 | 5 | Ludlow Union | 5 0 0 | 6 0 0 | 5 0 0 |
| | | Luton | | | |
| | | Lutterworth | | | |
| | | Lyme Regis | | | |
| | | Lymington | | | |
| | | Malmesbury | | | |
| | | *Macclesfield* 32,000 | | 3 15 0 | |
| | | Maidenhead | | | |
| 300 | 50 | *Maidstone* | 50 0 0 | 10 0 0 | 90 0 0 |
| | | Maldon | | | |
| | | Marlborough | | | |
| | | Malton (New) | | | |
| | | Malvern | | | |
| | | Manningtree | | | |
| | | *Mansfield* £5000 | | 10 0 0 | |
| | | March | | | |
| | | *Margate* (see I. of T. | | | |
| | | Market Deeping | | | |
| | | Market Drayton | | | |
| 132 | 25 | Market Harboro' | 25 0 0 | 6 0 0 | 30 0 0 |
| | | Market Raisin | | | |
| | | Market Weighton | | | |
| | | Marlow | | | |
| 370 | 10 | Maryport | 10 0 0 | 6 0 0 | 12 0 0 |
| | | Melksham | | | |
| | | Melton Mowbray | | | |
| | | Merthyr Tydvil | | | |
| | | Mere | | | |
| | | *Middleton* £9030 | | 5 0 0 | |
| | | Midsummer Norton | | | |
| | | Middlesboro' | | | |
| | | Mildenhall | | | |
| | | Mitcham | | | |
| | | Mold | | | |
| 700 | 10 | Monmouth | 10 0 0 | 5 0 0 | |
| | | Monk Wearmouth | | | |
| | | Moreton in Marsh | | | |
| | | Morley | | | |
| | | Mottram | | | |
| | | Morpeth | | | |
| | | Nantwich | | | |
| | | Neath | | | |
| | | Needham Market | | | |
| | | *Newark* £5000 | | 10 0 0 | |
| 250 | 20 | Newbury | 20 0 0 | 5 0 0 | 20 0 0 |
| 13,000 | 5 | Newcastle & Gateshead Union | 5 0 0 | 8 0 0 | 8 0 0 |
| | | *Newcastle-under-Lyne* £6200 | | 4 0 0 | |
| 600 | 5 | Newmarket | 5 0 0 | 6 0 0 | 5 0 0 |
| | | Newnham, Glost. | | | |
| | | Newent | | | |
| | | *New Mills* £2115 | | 8 0 0 | |
| | | *Newport, M.* £11720 | | | |
| 320 | 50 | *Newport, Isle of W.* | 38 0 0 | 4 0 0 | 5 0 0 |
| | | Newport Pagnell | | | |
| | | Newport, Salop | | | |
| | | Newton Abbot | | | |
| | | Newton, Lanc. | | | |
| | | Northallerton | | | |
| | | North Walsham | | | |
| 542 | 20 | *Northampton* | 18 0 0 | 10 0 0 | 27 0 0 |
| | | Northwich | | | |
| | | *Norwich* (see British Pro. £40,000 | | 7 0 0 | |
| 900 | 50 | *Nottingham* | 50 0 0 | 10 0 0 | |
| 900 | 50 | New shares | | 10 0 0 | |
| | | Nuneaton | | | |
| | | Oakham | | | |
| | | Oakhampton | | | |
| 200 | 10 | Odiham, Hants | 10 0 0 | 4 0 0 | 10 0 0 |
| | | *Oldham* | | | |
| | | Olney | | | |
| | | Ongar | | | |
| | | Ormskirk | | | |
| | | Otley, Yorkshire | | | |
| | | Oundle | | | |
| 120 | 150 | *Oxford* | 150 0 0 | 8 0 0 | 260 0 0 |
| | | *Over Darwen* £8000 | | 5 0 0 | |
| | | Padstow | | | |
| | | Pately Bridge, Yrk. | | | |
| 250 | 20 | Penrith | 15 0 0 | 6 10 0 | 21 0 0 |
| | | Penryn | | | |
| | | Penzance | | | |
| 200 | 10 | Petworth | 10 0 0 | 8 0 0 | 12 0 0 |
| | | Petersfield | | | |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| | | Pickering | | | |
| 3000 | 10 | *Plymouth* | 10 0 0 | 10 0 0 | 11 0 0 |
| | | Pocklington | | | |
| | | Pontefract | | | |
| 400 | 10 | *Pontypridd* | | | |
| | | Poole | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Port Madoc | | | |
| 600 | 50 | *Portsea Island* | 53 0 0 | 5 0 0 | 48 to 49 |
| 400 | 10 | Prescott | 9 0 0 | 4 13 4 | 7 0 0 |
| 3000 | 20 | *Preston* | 20 0 0 | 10 0 0 | |
| | | Pwllheli | | | |
| | | *Pudsey* £12,000 | | 5 0 0 | |
| | | *Radcliff and Pilkington* £9000 | | 4 12 10 | |
| | | Ramsay, I. of Man | | | |
| | | *Ramsgate* (see I. of T | | | |
| | | Ravenglass | | | |
| 1000 | 10 | *Reading* | 10 0 0 | 4 0 0 | 7 0 0 |
| 500 | 20 | *Reading Union* | 20 0 0 | 6 0 0 | 17 0 0 |
| | | Redditch | | | |
| | | Redruth | | | |
| | | Reigate | | | |
| | | Retford (East) | | | |
| | | Rhyl | | | |
| | | Richmond (Surrey) | | | |
| | | Ringwood | | | |
| | | Ripon | | | |
| | | *Rochester and Chatham* £20,000 | | 6 0 0 | |
| | | Rochford | | | |
| | | Rockingham | | | |
| | | Romford | | | |
| | | Ross | | | |
| 245 | 25 | *Rotherham* | 25 0 0 | 6 0 0 | 40 10 0 |
| | | Royston | | | |
| | | Ruabon | | | |
| | | Rugby | | | |
| | | Rugeley | | | |
| | | *Runcorn* £11,000 | | 7 10 0 | |
| | | Ruthin | | | |
| 500 | 10 | Ryde | 10 0 0 | 6 0 0 | 12 0 0 |
| | | Rye | | | |
| | | Romsey | | | |
| | | Saddleworth | | | |
| 225 | 20 | Saffron Walden | 20 0 0 | 3 15 0 | 19 0 0 |
| | | St. Austel | | | |
| | | St. Asaph | | | |
| | | St. Colomb | | | |
| | | *St. Helen's* £7500 | | 7 10 0 | |
| | | St. Helier's (Jersey) | | | |
| | | St. Ives, Hunting. | | | |
| | | St. Ives, Cornwall | | | |
| 250 | 10 | St. Neot's | 10 0 0 | 8 0 0 | 12 0 0 |
| | | St. Peter's Port, (Guernsey) | | | |
| 320 | 25 | Salisbury | 25 0 0 | 6 0 0 | 28 to 30 |
| | | Sandbach | | | |
| 140 | 10 | Saxmundham | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Scarborough | | | |
| | | Sedburgh | | | |
| | | Selby | | | |
| | | Settle | | | |
| 290 | 10 | Sevenoaks | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Shaftesbury | | | |
| 5400 | 25 | *Sheffield United* | 24 0 0 | 8 6 8 | 30 0 0 |
| | | Shelton, Potteries (see Brit. Prov.) | | | |
| | | Shepton Mallet | | | |
| | | Sherborne | | | |
| 2914 | 5 | Shields (Tynemouth, | 5 0 0 | 3 0 0 | 5 0 0 |
| | | Shields (South) | | | |
| | | Shiffnal, Salop | | | |
| 1000 | 5 | *Shipley* | 5 0 0 | 6 0 0 | 5 12 6 |
| | | Shipston-on-Stour | | | |
| | | Shoreham | | | |
| | | *Shrewsbury* £10,000 | | 7 0 0 | |
| 400 | 10 | Skipton | 10 0 0 | 4 0 0 | 11 0 0 |
| | | Sleaford | | | |
| 250 | 10 | Slough | 10 0 0 | | |
| | | Snaith | | | |
| | | Soham | | | |
| | | Southwold | | | |
| | | South Molton | | | |
| 1000 | 50 | *Southampton* | 32 0 0 | 5 0 0 | |
| | | Sowerby, Yorksh. | | | |
| | | Stretford | | | |
| | | Stokesly | | | |
| | | *Stafford* £10,000 | | 5 0 0 | |
| | | Staines and Egham | | | |
| | | *Staley Bdg.* £15,000 | | 10 0 0 | |
| | | *Stamford* £11,250 | | 3 0 0 | |
| | | *Stockton-on-Tees* £7980 | | 9 5 0 | |
| 840 | 9½ | Stockton, New | 9 10 0 | 9 0 0 | 8 0 0 |
| 960 | 10 | Stoke-upon-Trent | 10 0 0 | 7 0 0 | 11 10 0 |
| 500 | 10 | „ new shares | 6 0 0 | 7 0 0 | 7 10 0 |
| | | Stone, Stafford | | | |
| | | Stoney Stratford | | | |
| | | Stourbridge | | | |
| | | Stowmarket | | | |
| 150 | 20 | Stratford-on-Avon | 20 0 0 | 7 10 0 | 30 0 0 |
| | | Stroud | | | |
| 169 | 10 | Swaffham | 10 0 0 | 5 0 0 | 5 10 0 |
| | | *Swansea* £9000 | | | |
| | | Sudbury | | | |
| | | Sunderland, old | | | |
| 6400 | 5 | *Sunderland*, new | 5 0 0 | | |
| | | Sutton | | | |
| | | Sutton-in-Ashfield | | | |
| | | Swindon | | | |
| | | Sydenham | | | |
| 2800 | 5 | *Taunton* | 5 0 0 | None | 2 10 0 |
| | | Tadcaster | | | |
| | | Tamworth | | | |
| | | Tavistock | | | |
| | | Teignmouth | | | |
| | | Tenbury | | | |
| | | Tenby | | | |
| | | Tenterden £2000 | | 2 10 0 | |
| | | Tetbury, Gloster | | | |
| | | Tewkesbury | | | |
| | | Thame | | | |
| | | Thetford | | | |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| | | Thirsk | | | |
| | | Thornbury | | | |
| | | Thorne | | | |
| | | Tiverton | | | |
| 670 | 5 | Todmorden | 3 0 6 | | |
| | | Torquay | | | |
| | | Torrington, Devon | | | |
| | | Totnes | | | |
| | | Totnes Consumers | | | |
| 4000 | 5 | Tottenham | 3 10 0 | 6 0 0 | 3 0 0 |
| | | Towcester | | | |
| 200 | 10 | Tring | 10 0 0 | 5 0 0 | 10 0 0 |
| | | Trowbridge (see British Provin.) | | | |
| 75 | 50 | Truro | 50 0 0 | 2 0 0 | |
| | | Tunbridge | | | |
| | | Tunbridge Wells | | | |
| | | Ulverston | | | |
| | | Uppingham | | | |
| 240 | 5 | Upton-on-Severn | 5 0 0 | 5 0 0 | 5 0 0 |
| | | Usk, Monmouth | | | |
| | | Uttoxeter | | | |
| | | Uxbridge | | | |
| | | Ventnor | | | |
| 1000 | 25 | *Wakefield*, old capi | 25 0 0 | 6 0 0 | 25 0 0 |
| 1600 | 5 | „ new „ | 5 0 0 | 6 0 0 | 5 0 0 |
| 300 | 10 | Wallingford | 10 0 0 | 5 0 0 | 8 0 0 |
| | | Wandsworth | | | |
| | | Wantage | | | |
| | | *Warrington* £3304 | | 10 0 0 | |
| 100 | 10 | Wareham | 10 0 0 | 3 10 0 | 8 0 0 |
| 120 | 25 | Warminster | 25 0 0 | 5 0 0 | 27 0 0 |
| | | Warth | | | |
| | | *Warwick* £15,000 | | 6 0 0 | |
| | | Watford | | | |
| | | Welchpool, Mntgy. | | | |
| | | Wellingborough | | | |
| | | Wellington, Salop | | | |
| | | Wellington, Smrst. | | | |
| | | *Wells, Smrst.* £5000 | | 7 10 0 | |
| | | Westbury | | | |
| | | Weston-sup.-Mare | | | |
| 2000 | 5 | West Ham | 5 0 0 | 6 0 0 | 5 0 0 |
| | | Whitby | | | |
| | | Whitehaven | | | |
| | | Whitstable | | | |
| | | Whittlesea | | | |
| | | *Wigan* £10,160 | | 10 0 0 | |
| | | Willenhall | | | |
| | | Winchelsea | | | |
| | | Winslow | | | |
| 240 | 10 | Wimborne Minster | 10 0 0 | | |
| | | Wimbledon | | | |
| | | Wincanton | | | |
| 360 | 50 | Winchester | 50 0 0 | 6 0 0 | |
| 900 | 12½ | Windsor | 12 10 0 | 10 0 0 | 23 0 0 |
| | | Witham | | | |
| | | Witney | | | |
| 4448 | 10 | *Wolverhampton* | 10 0 0 | 7 10 0 | 17 10 0 |
| | | Woburn | | | |
| 210 | 10 | Wokingham | 10 0 0 | | 10 0 0 |
| | | Woodbridge | | | |
| | | Wooler | | | |
| | | Wotton-un.-Edge | | | |
| | | *Worcester* £29,000 | | 8 0 0 | |
| | | Workington | | | |
| | | Worksop & Radford | | | |
| | | Wirksworth | | | |
| | | Worthing | | | |
| | | Wrexham | | | |
| | | Woolwich Equitbl. | | | |
| | | Woolwich Consms. | | | |
| | | Woolwich (North) | | | |
| | | Wymondham | | | |
| | | Yarm | | | |
| 795 | 20 | Yarmouth | 20 0 0 | | 17 to 18 |
| | | Yeadon, near Leeds | | | |
| | | Yeovil | | | |
| | | *York Untd.* £55,000 | | 7 0 0 | |
| | | **SCOTLAND.** | | | |
| | 5 | Aberdeen | 3 0 0 | | 3 16 6 |
| | | Airdrie | | | |
| | | Alloa | | | |
| | | Annan | | | |
| | | Anstruther | | | |
| | | Ardrossan | | | |
| 550 | 20 | Arbroath | 20 0 0 | 7 10 0 | 27 10 0 |
| | | Auchterarder | | | |
| 750 | 2 | Auchtermuchty | 2 0 0 | 6 0 0 | 2 7 6 |
| | | Ayr, old | | | |
| | | Ditto, new | | | |
| | | Banff | | | |
| | | Barrhead | | | |
| | | Bathgate | | | |
| | | Beith | | | |
| | | Bervie | | | |
| | | Biggar | | | |
| | | Blairgowrie | | | |
| 400 | 6 | Borrowstowness | 6 0 0 | 5 0 0 | 8 0 0 |
| | | Brechin | | | |
| | | Bridge of Allan | | | |
| | 2 | Broughty Ferry | 2 0 0 | 5 0 0 | 2 0 0 |
| | | Burntisland | | | |
| | | Campbelton | | | |
| | | Clackmannan | | | |
| | | Coatbridge | | | |
| | | Coldstream | | | |
| | | Collinsburgh | | | |
| | | Comrie | | | |
| | | Crieff | | | |
| | | Crail, Fife | | | |
| | | Culien | | | |
| | | Cumbernauld | | | |
| | | Cumnock | | | |
| 600 | 5 | Cupar Angus | 5 0 0 | 6 0 0 | 5 10 0 |
| 250 | 10 | Cupar Fife | 10 0 0 | 7 10 0 | 14 0 0 |
| | | Dalkeith | | | |
| | | Denny | | | |
| | | Dingwall | | | |
| | | Dornoch | | | |
| | | Douglas | | | |
| | | Dumbarton | | | |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| 400 | 20 | Dumfries | 14 0 0 | 5 0 0 | 20 0 0 |
| | | Dunbar | | | |
| | | Dunblane | | | |
| | 23⅓ | *Dundee*, old £29,687 | 23 15 0 | 8 8 0 | 30 10 0 |
| 8000 | 5 | *Dundee, new* | 5 0 0 | 4 0 0 | 4 0 0 |
| 860 | 10 | Dunfermline | 10 0 0 | 6 0 0 | 12 12 0 |
| | | Dunkeld | | | |
| | | Dunoon | | | |
| | | Dunse | | | |
| | | Dysart | | | |
| 6000 | 25 | *Edinburgh Gas Co.* | 25 0 0 | 10 0 0 | 52 10 0 |
| | 25 | ,, *and Leith Co.* £98,640 | 18 0 0 | 7 10 0 | 27 13 6 |
| | | Elie | | | |
| | | Elgin | | | |
| | | Falkirk, old | | | |
| | | ,, new | | | |
| | | Falkland | | | |
| | | Ferry Port on Craig | | | |
| | | Fochabers | | | |
| | | Forfar | | | |
| | | Fort William | | | |
| | | Fraserburgh | | | |
| | | Galashiels | | | |
| | | Garlieston | | | |
| | | Gatehouse n. Fleet | | | |
| | | Girvan | | | |
| | 25 | *Glasgow* £129,500 | 25 0 0 | 10 0 0 | 50 0 0 |
| 15000 | 10 | *Glasgow City and Suburban* | 10 0 0 | 9 0 0 | 19 17 6 |
| | | Grangemouth | | | |
| | | Grahamston | | | |
| | | Haddington | | | |
| | | *Hamilton* £7500 | | 8 0 0 | |
| | | Hawick | | | |
| | | Helensburgh | | | |
| | | Huntly | | | |
| | | Inverary | | | |
| 400 | 1 | Inverkeithing | 1 0 0 | 5 0 0 | 1 0 0 |
| 1200 | 10 | *Inverness Gas and Water* | 10 0 0 | 7 10 0 | 15 0 0 |
| 2400 | 5 | ,, new shares | 1 5 0 | 7 10 0 | 2 5 0 |
| | | Irvine | | | |
| | | Jedburgh | | | |
| | | Johnstone, near Paisley | | | |
| | | Keith | | | |
| | | Kelso | | 10 0 0 | |
| | | Kilmarnock | | | |
| | | Kincardine | | | |
| | | Kinghorn | | | |
| | | Kingskittle, Fife | | | |
| | | Kinross | | | |
| | | Kirkaldy | | | |
| 320 | 5 | Kirkcudbright | 5 0 0 | 5 0 0 | 5 0 0 |
| 1000 | 3 | Kirkintulloch, near Glasgow | 3 0 0 | 5 0 0 | 3 0 0 |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| 227 | 5 | Kirkwall | 5 0 0 | 5 0 0 | 4 10 0 |
| 518 | 5 | Kirriemuir | 5 0 0 | 6 0 0 | |
| | | Lanark | | | |
| | | Largo, near Leven | | | |
| | | Largs | | | |
| | | Lasswade, n. Edin. | | | |
| | | Lauder | | | |
| | | Leith | | | |
| | | Leslie, Fife | | | |
| | | Lesmahago | | | |
| | | Leven | | | |
| | | Linlithgow | | | |
| | | Linton, n. Nobleh. | | | |
| | | Lochee, n. Dundee | | | |
| | | Lochgilphead | | | |
| | | Lochwinnoch, near Paisley | | | |
| 1200 | 1 | Markinch | 1 0 0 | 7 10 0 | 1 5 0 |
| | | Mauchline | | | |
| | | Maxwell-town, n. Dumfries | | | |
| | | Maybole, Ayrshire | | | |
| | | Maryhill, near Glasgow | | | |
| | | Melrose | | | |
| 718 | 2 | Mid & East Calder | 2 0 0 | | 2 0 0 |
| 192 | 5 | Moffat | 5 0 0 | | |
| | 13½ | Montrose | 13 10 0 | 7 11 1 | |
| | | Musselburgh | | | |
| | | Nairn | | | |
| | | Neilston, n. Glasg. | | | |
| | | Newmills, near Kilmarnock | | | |
| | | Newburgh, Fife | | | |
| | | Newton-on-Ayre | | | |
| | | Newton Stewart | | | |
| | | North Berwick, n. Haddington | | | |
| | | North Queensferry | | | |
| | | Oban | | | |
| | | Peebles | | 4 16 0 | |
| 800 | 25 | Perth | 25 0 0 | | 22 10 0 |
| | 5 | ,, new | 5 0 0 | | 2 7 6 |
| | | Peterhead | | | |
| | | Pittenweem | | | |
| | | Pollokshaws, near Glasgow | | | |
| | | Port Glasgow | | | |
| | | Portobello, n. Edin. | | | |
| | | Prestonpans | | | |
| | | Rutherglen, near Glasgow | | | |
| | | Renfrew, n. Paisley | | | |
| | | Saltcoats | | | |
| | | Sanquhar | | | |
| | | Selkirk | | | |
| | | South Queensferry | | | |

| Number of Shares issued. | Amount per Share | Name of Company. | Amount paid up per Share | Dividend per Cent. per Ann. | Price. |
|---|---|---|---|---|---|
| | £ | | £ s. d | £ s. d | £ s. d |
| | | St. Andrew's | | | |
| | | Stewarton | | | |
| | | Stirling | | | |
| | | Stonehaven | | | |
| | | Stonehouse, Lanrks. | | | |
| | | Stornoway | | | |
| | | Stranraer | | | |
| | | Strathaven, near Hamilton | | | |
| | | Thurso | | | |
| | | Tillicoultry, n. Alloa | | | |
| 800 | 1 | Tranent | 1 0 0 | | 1 0 0 |
| | | Troon | | | |
| | | Wick | | | |
| | | Wigton | | | |
| | | Wemyss | 4 10 0 | | |
| | | **IRELAND.** | | | |
| 300 | 10 | Armagh | 10 0 0 | 8 0 0 | 14 10 0 |
| | | Ballinasloe | | | |
| 700 | 50 | *Belfast* | 50 0 0 | | |
| | | Ballymena | | | |
| | | Ballymoney | | | |
| | | Carrickfergus | | | |
| | | Carlow | | | |
| | | Cavan | | | |
| | | Cork (see Un. Gen.) | | | |
| | | Cookstown | | | |
| 1300 | 5 | Clonmel Consums | 5 0 0 | 5 0 0 | 5 0 0 |
| | | Drogheda | | | |
| 19,000 | 10 | *Dublin Consumers* | 6 0 0 | 7 0 0 | 8 10 0 |
| | | *Dublin Hibernian* (see United Gen.) | | | |
| 160 | 25 | Dundalk | 25 0 0 | | 22 0 0 |
| | | Dungannon | | | |
| 871 | 5 | *Downpatrick* | 5 0 0 | 4 0 0 | |
| | | Enniskillen | | | |
| | | Enniscorthy | | | |
| 240 | 25 | Galway | 25 0 0 | 10 0 0 | 32 0 0 |
| 400 | 10 | Kilkenny | 10 0 0 | 8 0 0 | 11 5 0 |
| | | Larne | | | |
| | | Limerick (see U.G.) | | | |
| 1725 | 5 | Limerick Consum. | 5 0 0 | 5 0 0 | 5 0 0 |
| 600 | 15 | Londonderry | 15 0 0 | 6 13 4 | 21 10 0 |
| 500 | 7 | Lisburn | 7 0 0 | 7 10 0 | 8 5 0 |
| 520 | 10 | Lurgan | 6 0 0 | 6 0 0 | 6 0 0 |
| | | Mallow | | | |
| | | Monaghan | | | |
| | | Nenagh | | | |
| 448 | 5 | Newtownards | 5 0 0 | 4 0 0 | 5 0 0 |
| | | Newry | | | |
| | | Omagh | | | |
| 125 | 20 | Portadown | 20 0 0 | 6 0 0 | 20 0 0 |
| 600 | 10 | Sligo | 10 0 0 | | |
| | | Tipperary | | | |
| | | Tralee | | | |
| | | Waterford | | | |

The Gas Works in the undermentioned towns belong to private individuals:—

| | | | | | |
|---|---|---|---|---|---|
| Abergavenny. | Farsley. | Huntingdon. | Newport I. W. (new). | Seaham Harbour. | Ware. (2 works) |
| Bridgenorth. | Gainsborough | Hyde (Cheshire) | Oswestry. | Sheerness. | Wem. |
| Carnarvon. | Goole. | Kingston-on-Thames. | Peterborough. | Sidmouth. | Wexford. |
| Chester, new. | Harleston. | Lynn. | Pontypool. | Sittingbourne. | Weymouth. |
| Deal. | Hatfield. | New Ross. | St. Alban's. | Spalding. | Whitchurch (Salop). |
| Diss | Hertford. | Northfleet. | Sandwich. | Waltham Abbey. | Wisbeach. |
| Ely. | Holt. | | | | |

The Gas Works belong to the Corporations, or to Commissioners acting under special acts of Parliament, in the following towns:—

| | | | | | |
|---|---|---|---|---|---|
| Carlisle. | Greenock. | Lytham (Lanc.) | Rochdale. | Southport (Lanc.) | Walsall. |
| Cashel. | Haverfordwest. | Manchester. | Rothesay. | Stockport | Wells (Norfolk). |
| Coleraine. | Keighly. | Milton (Kent). | Richmond (Yorkshire). | Strabane. | Youghall. |
| Doncaster. | Knaresborough. | Paisley. | Salford. | | |

# Price Current.

## CASTINGS, per Ton.

Average Weight of Cast Iron Gas Pipes, per Yard.

| 1½ in. | 2 in. | 2½ in. | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. | 12 in. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 21 | 28 | 33 | 51 | 70 | 89 | 107 | 126 | 149 | 177 | 208 lbs. |

| Retail Prices are 5 to 10 per cent. higher. | London. | Glasgow | Newcastle. | Wales. | Yorksh., Derbysh. and Staffrdsh. |
|---|---|---|---|---|---|
| | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Pig Iron, No. 1 | 4 0 0 | 3 0 0 | 3 10 0 | 4 0 0 | 3 15 0 |
| 1¼ and 2 inches Socket Pipes | 6 12 6 | 5 10 0 | 6 0 0 | 6 10 0 | 6 5 0 |
| 2½ and 3 do. do. | 6 0 0 | 5 0 0 | 5 10 6 | 6 0 0 | 5 15 0 |
| 4 and 5 do. do. | 5 17 6 | 4 17 6 | 5 7 6 | 5 17 6 | 5 12 6 |
| 6 inches and upwards do. | 5 15 0 | 4 15 0 | 5 5 0 | 5 15 0 | 5 10 0 |
| Extra for bends, branches, and connection | 2 0 0 | 2 0 0 | 2 0 0 | 2 0 0 | 2 0 0 |
| Retorts, 2nd fusion, hot blast | 5 10 0 | 4 15 0 | 5 5 0 | .. | 5 10 0 |
| Do. 2nd fusion, cold blast | 6 0 0 | .. | .. | 5 10 0 | 6 0 0 |
| Tank Plates, ⅜ thick and above | 6 5 0 | 5 5 0 | 5 15 0 | 5 15 0 | 6 0 0 |
| Do. less than ⅜ | 6 15 0 | 5 15 0 | 6 5 0 | 6 5 0 | 6 10 0 |
| Plain Castings ex. models | 6 10 0 | 5 10 0 | 6 0 0 | 6 10 0 | 6 5 0 |

## COALS.

| NEWCASTLE. Unscreened. | s. | d. | |
|---|---|---|---|
| Whitwell Primrose | 4 | 6 | per ton. |
| Burnhope | 5 | 3 | ,, |
| Dean's Primrose | 5 | 9 | ,, |
| Pelton, Brancepeth, Medomsley | 6 | 0 | ,, |
| Pelaw | 6 | 3 | ,, |
| Eighton Moor, Felling Main, New Pelton, Peareth, South Pelaw, Waldridge, Washington Hutton, South Peareth | 6 | 6 | ,, |
| Ramsay's Cannel | 12 | 0 | ,, |
| Cowen's Cannel | 12 | 0 | ,, |

| DERBYSHIRE. | | |
|---|---|---|
| Clay Cross, Deep Main, and New Birchwood | 6s. 6d. | per ton. |
| **SCOTCH CANNEL.** | | |
| Boghead at Leith | 19 0 | ,, |
| Kirkness best | 23 0 | ,, |
| Capeldrae, first quality | 20 0 | ,, |
| Ditto, second quality | 10 0 | ,, |
| Lothian | 16 0 | ,, |
| Lesmahago at Glasgow | 16 0 | ,, |
| Ditto at Leith | 17 6 | ,, |
| Arniston | 16 0 | ,, |
| Wemyss | 14 0 | ,, |
| Donibristle | 10 6 | ,, |
| Bridgeness, Kinneil | 11 0 | ,, |
| Knightswood | 10 0 | ,, |
| Lochgelly, Lumphinan | 9 6 | ,, |

## FIRE GOODS.

Best Bricks, 50s. per 1000, at Newcastle.
Do. Clay, 12s. per ton do.

## LEAD.

Soft pig, £18. 10s. per ton.

## WROUGHT IRON TUBING, subject to 30 per cent. Discount.

| | 2 inches. | 1½ inch. | 1¼ inch. | 1 inch. | ¾ inch. | ½ inch. |
|---|---|---|---|---|---|---|
| | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. |
| Patent welded tubes, from 2 to 12 feet, per foot | 1 8 | 1 0 | 0 10 | 0 7 | 0 5 | 0 4½ |
| Ditto ... ... ,, 6 in. to 18 in., each | 3 0 | 2 0 | 1 9 | 1 3 | 1 0 | 0 9 |
| Connecting pieces, or long screws | 3 6 | 2 3 | 2 0 | 1 6 | 1 2 | 0 11 |
| Bends, springs, and elbows, wrought iron | 3 9 | 2 3 | 1 9 | 1 0 | 0 10 | 0 8 |
| Tees, wrought or cast | 4 0 | 2 6 | 2 0 | 1 6 | 1 1 | 0 10 |
| Crosses, wrought or cast | 4 6 | 3 0 | 2 6 | 2 0 | 1 6 | 1 2 |
| Iron cocks | 17 6 | 9 6 | 7 6 | 4 6 | 3 3 | 2 6 |
| Ditto, with brass plug | 28 0 | 16 0 | 13 0 | 7 0 | 5 6 | 4 6 |
| Diminishing sockets, caps, plugs, and nipples | 1 3 | 0 9 | 0 8 | 0 6 | 0 5 | 0 4 |
| Plain sockets | 1 0 | 0 8 | 0 7 | 0 5 | 0 4 | 0 3 |
| Flanches | 1 9 | 1 6 | 1 3 | 1 0 | 0 9 | |
| Syphons, 2 quart | 15 0 | 14 0 | 13 6 | 13 0 | 12 0 | |
| Ditto 1 quart | 11 6 | 10 6 | 10 3 | 10 0 | 9 6 | |

## FREIGHTS, per Ton.

| *Coastwise—Newcastle.* | s. | d. |
|---|---|---|
| Chatham & Roches. | 7 | 0 |
| Cork | 8 | 6 |
| Dover | 7 | 0 |
| Dublin | 8 | 6 |
| Exeter Quay | 8 | 3 |
| Folkestone | 8 | 0 |
| Hastings | 8 | 6 |
| Ipswich | 6 | 3 |
| Jersey | 8 | 6 |
| London | 7 | 0 |
| Lowestoft | 4 | 6 |
| Lynn | 6 | 0 |
| Margate | 7 | 6 |
| Portsmouth | 8 | 6 |
| Plymouth | 8 | 6 |
| Southampton | 8 | 9 |
| Weymouth | 8 | 9 |
| Yarmouth | 5 | 0 |
| *Foreign.* | | |
| Amsterdam | 11 | 0 |
| Boulogne | 8 | 0 |
| Barcelona | 17 | 0 |
| Bordeaux | 11 | 6 |
| Calais | 8 | 6 |
| Dieppe | 9 | 0 |
| Hamburg | 9 | 0 |
| Havre | 10 | 0 |
| Lisbon | 11 | 0 |
| Rotterdam | 10 | 0 |
| Rouen | 11 | 6 |
| St. Petersburgh | 11 | 6 |
| Stettin | 9 | 6 |
| Trieste and Venice | 19 | 0 |